BENTHOS AND FOOD SUPPLY STUDIES IN FEEDING GROUNDS OF THE OKHOTSK-KOREAN GRAY WHALE POPULATION

FINAL REPORT

ON MATERIALS FROM FIELD STUDIES ON THE SEAGOING TUG *NEVELSKOY* IN 2003

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Juvenile gray whale feeding in the Piltun area. Depth, 3 m. September 2003. Photograph by Yu. M. Yakovlev

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R U S S I A N A C A D E M Y O F S C I E N C E S
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RESEARCH REPORT

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INTRODUCTION

General information[1]. It is well known that two independent gray whale (*Eschrichtius robustus*) populations live in the Pacific Ocean (LeDuc et al. 2002): the Eastern or California-Chukotka population, which numbered approximately 18,000 individuals in 2001 (Rugh et al. 1999, LeBoeuf et al. 2000, Rugh 2003), and the Western Pacific or Korean-Okhotsk population, which numbers about 100 (Weller et al. 2002).

Since commercial whaling was halted in the 1940's, the eastern gray whale population has fully recovered, however number have dropped in recent years from ~26, 000 in 1998-98 (Rugh et al. 1999) to 17,000 in 2001 (Rugh 2003). Despite the fact that a rise in mortality, a low birth rate and deterioration in the physical condition of some individuals were observed in the Eastern population in 1999 and 2000 (Moore et al. 2001), the population is in sufficiently stable condition due to its large size (LeBoeuf et al. 2000).

In contrast to the eastern population, the Korean-Okhotsk gray whale population has never been large and according to the estimates of experts did not exceed 2 – 2.5 thousand individuals at its peak (Berzin 1974, Yablokov and Bogoslovskaya 1984). Many years of whaling brought the population to the brink of practical extinction, and it was only in the early 1970's that gray whales began to be sighted off Northeastern Sakhalin (Berzin 1974, Brownell and Chun 1977, Blokhin et al. 1985). A 40-year ban on whaling (beginning in the 1960's) failed to produce a substantial restoration of the whale population. According to optimistic estimates, the whale population numbers between 100 and 250, although most researchers estimate the population as not more than 100 whales (Blokhin 1996; Blokhin and Burgin 2001; Vladimirov 2000; Sobolevsky 1999, 2000; Sobolevsky 2000, 2001; Weller et al. 1999, 2000, 2001, 2002; Yazvenko et al. 2002). It is hypothesized that there are fewer than 50 remaining individuals capable of reproduction (Weller et al. 2001). Lower reproduction rates, genetic uniqueness (LeDuc et al. 2002) and the low total number of whales in the Korean-Okhotsk gray whale population (Weller et al. 2000, Vladimirov 2000) prompted inclusion of the species in category I of the IUCN endangered species list (International List of Protected Species (IUCN) (USFWS

[1] Since the history of the study of benthos and data on its distribution in the Eastern Sakhalin area and on the diet of the California-Chukotka gray whale population have been analyzed in detail and summarized in the report: Kussakin, O. G., E. I. Sobolevsky and S. A. Blokhin. Survey of Published Studies of Benthos on the Northeastern Sakhalin Shelf. Interim Report of the Marine Biology Institute, Russian Academy of Sciences Far East Branch, and TINRO Center. Vladivostok, 2001, 89 pp., the authors have not undertaken a survey of the literature on these issues in this section. We shall include published data in the discussion of the results and elsewhere when necessary. The actual report (Kussakin et al. 2001) is available on the website: www.sakhalinenergy.com .

1997; Hilton-Taylor 2000, Weller and Brownell 2000) and the Red Book of the Russian Federation (2000).

The startup of commercial operations associated with the development of the offshore oil and gas complex on the East Sakhalin Shelf in the mid-1990's necessitated comprehensive study of the Western Pacific gray whale population to assess the possible anthropogenic impact on the population and to develop approaches to minimize the effect of negative factors (Berzin and Vladimirov1996, Vladimirov 2000). In particular, in development of the joint declaration of the Gore-Chernomyrdin Commission "On Measures to Ensure Biodiversity Conservation in the Sakhalin Island Area" dated 7 February 1997, in connection with the development of oil and gas fields on the island shelf, the Russian and American sides in 1998 prepared a joint "Korean-Okhotsk Gray Whale Population Monitoring and Research Program," which was approved by the State Committee on Protection of the Environment (Goskomekologiya) of Russia and the US Fish and Wildlife Service (Weller et. al. 2001). The program called for complex studies of the Korean-Okhotsk population during the feeding period of the whales off Eastern Sakhalin; recording of the number and distribution of whales, acoustic studies, and a study of benthos as the basic component in the diet of gray whales.

In 2001, under a contract with Sakhalin Energy Investment Company Limited (SEIC) and Exxon Neftegas Limited (ENL), benthos studies were conducted on 10 diving transects in the Northeast Sakhalin coastal zone in an area from Niyskiy Bay in the south to Tront Bay in the north. Four sections were completed in the traditional Piltun feeding grounds of the gray whales – the area of Piltun Bay. It was demonstrated that at depths of 5 to 15 m, this area is characterized by a great abundance of forage benthos, primarily amphipods and isopods (Fadeev 2002).

For a long time, the Piltun Area was considered the only gray whale feeding location of the east coast of Sakhalin Island during the summer and fall period, although small groups of animals were also sighted at a considerable distance from shore, at significant depths (Sobolevsky 1999, Miyashita et al. 2001). However, seven feeding gray whales were discovered in an area offshore Chayvo Bay on 10 September 2001 by marine mammal observers on a seismic survey support vessel (Maminov and Yakovlev 2002, Meier et al. 2002) while the ship was refueling, and subsequent aerial and vessel monitoring has indicated that this a second feeding area (Maminov 2003, Blokhin et al. 2003. This Offshore feeding area is located 20-45 km offshore between the middle part of Chayvo Bay and the southern part of Niyskiy Bay, at

depths of 30-50 m. Whales were present there constantly from June to November (Blokhin et al. 2002), and the observed number of whales fluctuated from 48 to 83.

In 2002, a complex study of gray whales, both in the well-known shallow feeding area (Piltun Area, off Piltun Bay), and in the new deepwater area (Offshore Area) was developed. The set of studies included the investigation of benthos as a food object for gray whales. The field phase of the studies was conducted in 2002 (Fadeev 2003) and 2003 within the scope of expeditions aboard the *Nevelskoy*.

The first data obtained in 2002 on the benthos composition and distribution in the Offshore Area indicated that gray whales feed there in areas of ampeliscid amphipod dominance (Fadeev 2003). Amphipods of the genus *Ampelisca* are the most widespread and best-known food object at locations where gray whales were observed feeding (Zimushko and Lenskaya 1970; Blokhin and Pavlyuchkov 1988; Bogoslovskaya 1996; Zenkovich 1937; Kusakin et al. 2001; Jones and Swartz 2002; Nerini 1984; Oliver et al. 1983, 1984). Whales feed in the Piltun Area in shallow coastal areas dominated by amphipods that differ from ampeliscid amphipods in ecology and type of diet (Sobolevsky et al. 2000; Fadeev 2002, 2003).

The goal of this survey was to study the quantitative distribution and status of benthos in the Piltun and Offshore feeding grounds of the gray whale.

The work was done under the "Korean-Okhotsk Gray Whale Population Monitoring and Research Program," funded by Sakhalin Energy Investment Company Ltd. and Exxon Neftegas Limited.

Tasks of the study. This report was prepared based on the results of benthos studies conducted in July-September 2003 by an expedition of the Marine Biology Institute of the Far East Branch of the Russian Academy of Sciences.

The goals of the study were:

- to conduct benthos studies in the Piltun and Offshore whale feeding areas with the use of bottom grab sample collections;
- to investigate the benthos composition at gray whale feeding sites (where whales are observed actively feeding);
- information on the species composition and abundance (colony density and biomass) of individual taxonomic groups and mass species of benthos is to be obtained from analysis of macrobenthos collections; to assess the composition and abundance of macrobenthos in the whale feeding grounds and outside the feeding zones;
- to perform a morphometric analysis of the mass species of amphipods to assess the size composition;
- to obtain data on the particle size distribution of sediments in feeding grounds and at feeding sites of gray whales; and

- to perform a comparative analysis of the benthos distribution in the Piltun and Offshore areas based on materials for 2002 and 2003.

MATERIALS AND METHODS

1. Materials and Methods for Field Studies

1.1. Materials

Deadlines for performance of the studies. Field work to study benthos and the food supply for gray whales was performed by a field group from the Marine Biological Institute of the Far East Branch, Russian Academy of Sciences, aboard the Seagoing Tug *Nevelskoy*, from 28 July to 19 September 2003.

Characteristics of field collections. Two gray whale feeding areas were studied in 2003: 1 – the Piltun Area (coastal zone in the section between Odoptu Bay and the southern part of Piltun bay); 2 – Offshore Area (30-45 km from the shoreline in the section between the middle part of Chayvo Bay and the southern part of Niyskiy Bay).

In planning the locations of benthos stations, a common approach was used in the two feeding areas in 2003 and 2002. The Piltun Area was divided into 60 sectors of equal area arranged in five blocks corresponding with the aerial survey blocks (Appendix 1, Fig. A1.1). Within each sector, the locations of the stations were determined according to a table of random numbers in 2002 (60 stations) and 2003 (60 stations). The water area of the Offshore Area was divided into 36 sectors (four blocks) with an area of about 115 km^2 each (Appendix 1, Fig. A1.2). In the expeditions in 2002 and 2003, there were 36 stations in the Offshore area.

Naturally, even the stations located within the same sector in 2002 and 2003 are some distance apart. The distances between the same stations in 2003 and 2002 varied from 0.06 to 5.3 km (2.34±0.18 km, on the average). The area of individual sectors in the Offshore Area is larger than in the Piltun Area, and the distances between the same stations in 2003 and 2002 are substantially greater there – from 0.33 to 10.75 km (5.08±0.48 km, on the average). Correlated layouts of the stations in 2003 and 2002 in the Piltun and Offshore areas are presented in Appendix 1 (Figs. A1.1 and A1.2).

The locations of benthos stations in 2003 are shown in Fig. 1. Bottom grab benthos sample collections were taken from 150 stations (Table 1). In addition to the completion of standard benthos stations (99 stations), sampling was performed at gray whale feeding sites (51 stations). In the Offshore Area, 12 samples were collected at four consecutive feeding sites of the same gray whale as it foraged. The sampling log is presented in Appendix 2 (Table A2.1).

Table 1. Characteristics of the Materials Collected Aboard the Seagoing Tug *Nevelskoy* in 2003 and 2002.

Item	Area	Van Veen bottom grab sampler			
		2003		2002	
		station number	samples	Station number	samples
1	Piltun Area	63	189	60	163
2	Offshore Area	36	108	36	105
3	Whale feeding sites				
	Piltun Area	12	36	21	66
	Offshore Area	39	117	25	79
	Total	150	450	142	413

As in 2002, bottom grab sample collections in 2003 were taken from aboard the ship, which imposed restrictions on the minimum depth of the benthos collections. Specifically, it was impossible to investigate a portion of the most abundant sections of the Piltun Area situated at depths of 5-15 m. The shallowest collections were 8 m in 2003 and 11 m in 2002 (Table 2).

Table 2. Distribution of Stations by Depths in Collections for 2003 and 2001-2002.

Depth Range	Number of Stations		
	2003	2002	2001
1 - 5 m	**0**	0	5
6 -10 m	**10**	0	5
11-15 m	**19**	16	5
16-20 m	**7**	13	5
21-25 m	**12**	18	5
26-30 m	**10**	11	5
31-35 m	**5**	2	0
Total	**63**	60	30

Taking into account the data of diving operations in 2001 (Fadeev 2002) which showed that sections of the Piltun Area at depths of less than 15 m are richest in food organisms, sampling of benthos was conducted by divers in the range of 1-10 m in July 2003. The sampling was conducted by diver G.M. Kamenev during an non-industry funded expedition on the research vessel "*Akademik Oparin*" undertaken by IBM FEB RAS. The locations of these collections follow the diving transect **Piltun 4** in the southern part of the Piltun Bay area (Fig. 1: Fadeev 2002) conducted in 2001. The diving methods and samplers used in collecting materials in 2001

were used in 2003 as well. There were six stations at depths of 1, 3, 5, 7 and 10 m, and 20 samples were collected with a diving bottom grab sampler.

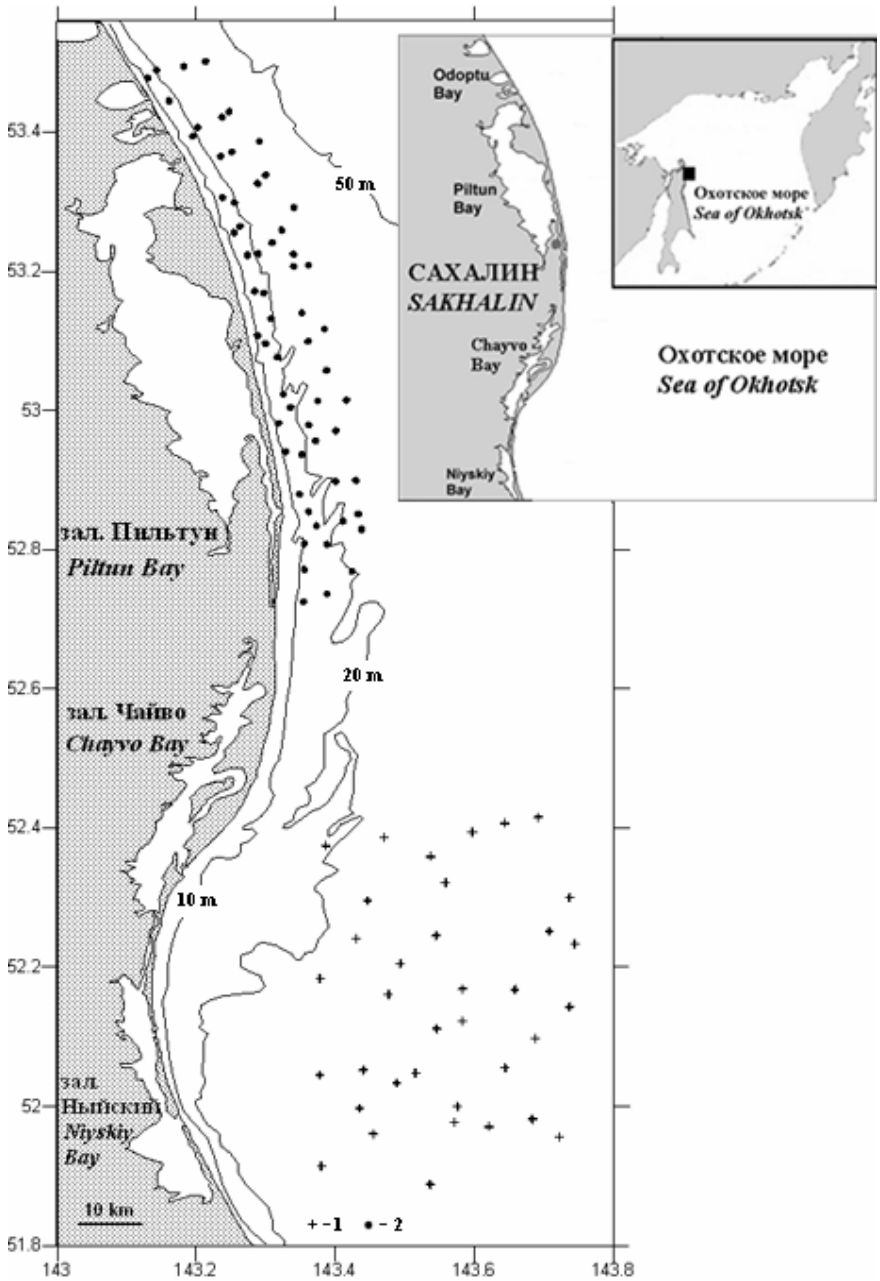

Figure 1 Diagram of the locations of stations in the study area in 2003.
1 – stations in the Offshore Area;
2 – stations in the Piltun Area.

1.2. Methods for Field Studies

All benthos collecting on the 2003 expedition was performed with the Van Veen bottom grab sampler (grab area 0.3 m^2, weight 57 kg). Three replicate samples were taken at each station.

Aboard the ship, all the macrobenthos samples were washed on a washing table through a system of three sieves – 5 mm (to remove coarse bottom fractions and large animals – flat sea urchins and mollusks), 1 mm, and 0.5 mm (the bottom sieve) – and fixed with 4% formalin. Then all the samples were transferred to 75% alcohol. For analysis of the *particle size distribution* of the bottom, a sample was taken from the surface sediment layer using a teflon pipe sampler. The samples were placed in plastic packets and left in a cooler until they could be sent to the laboratory.

The location was recorded at each station by GPS, the depth, surface water temperature and salinity were recorded, and bottom samples were taken for analysis of the particle size distribution (150 samples). The surface temperature and salinity of the water were measured with a MultiLine P4 hydrologic probe.

2. Laboratory Analysis of Materials

2.1. Analysis of Particle Size Distribution of Bottom Sediments

The particle size distribution of bottom sediments was analyzed at the *Shelf Problems Laboratory of the Far East National University* (DVGU) by two standard methods: sieve and areometric. The analysis determined the percentage concentrations in the soil of fractions of the following sizes: larger than 10; 10-5; 5-2; 2-1; 1-0.5; 0.5-0.25; 0.25-0.1; 0.1-0.05; 0.05-0.01; 0.01-0.005 and smaller than 0.005 mm. The moisture content (W) and specific gravity of the bottom soil samples were determined preliminarily by the standard method. Then the soil samples were dried and sifted through a set of sieves with mesh sizes of 10, 5, 2 and 1 mm. The soil fractions left in the sieves and the fraction that passed through the 1 mm sieve were weighed. The sediment that passed through the sieve with a mesh size of 1 mm was transferred to a porcelain cup that had been weighed in advance and then was weighed. The soil sample was poured into a flask with a capacity of 1000 cm^3, which was then filled with distilled water (about 300 ml). The soil with water added was allowed to stand for one day. After standing for a day, 1 cm^3 of a 25% ammonia solution was added to the sample, and the flask with the sample was boiled for one hour and then cooled to room temperature. The suspension thus obtained was poured into a glass beaker with a capacity of one liter through a sieve with a mesh size of 0.1

mm. The soil particles remaining in the 0.1 mm sieve were dried, sifted through a set of sieves with mesh sizes of 0.5, 0.25 and 0.1 mm, and then weighed separately. The suspension was agitated for one minute, until the sediment was stirred up completely from the bottom of the cylinder. An areometer was introduced, and its readings were determined for the fraction smaller than 0.05 mm one minute after the agitation stopped, for the fraction smaller than 0.01 mm after 30 minutes, and for the fraction smaller than 0.005 mm after three hours.

The Classification of sediments according to mechanical composition (Table 3) has been used to designate soil types.

2.2. Analysis of Benthos Samples

Laboratory processing of *macrobenthos* consisted of determining the benthos species composition and quantitative characteristics in the sample (biomass and number of each species and of individual taxonomic groups, and overall total biomass and macrobenthos count in the sample). A total sorting of animals was performed. Large organisms were counted visually, and small ones were counted under the MBS-10 binocular stereoscopic microscope.

Table 3. Bottom Sediment Classification Used in the Report (Bezrukov and Lisitsyn 1960, Shepard 1976).

Sediment Group	Types of Sediments	Abbreviation in Text	Predominant Particle Size, mm	Md, mm
Coarsely fragmented (psephites)	Pebbles	**Ga**	>10	
Coarsely fragmented (psephites)	Gravel coarse medium small	 **Grc** **Grm** **Grs**	 10-5 5-2 2-1	
Sandy (psammites)	**Sand** **coarse** **medium** **fine**	 **Sc** **Sm** **Sf**	 1-0.5 0.5-0.25 0.25-0.1	 1-0.5 0.5-0.25 0.25-0.1
Silt (aleurites)	Coarse aleurites Fine aleurite silt	**Ac** **Af**	0.1-0.05 0.05-0.01	0.1-0.05 0.05-0.01
Clay (pelites)	Coarse pelite	**P**	<0.01	0.01-0.005

Note: Md, mm, is the median diameter of the soil particles. Numbers in the column are the range of values for the type of sediment in question.

The wet weight of large benthos organisms was determined with a VLKT-100 electronic balance with an accuracy of less than 10 mg, while the weight of small organisms was determined on a torsion balance with an accuracy of less than 1 mg. Just before weighing, the organisms were dried on filter paper for one minute. After this, the biomass per square meter was calculated according to the sampler area and rounded to 0.01 g. The average biomass error was determined with the same level of accuracy. The population density of organisms per square meter was also calculated and rounded to 1.

For colonial animals (*Hydroidea, Bryozoa, Spongia*), the number of individual colonies was counted; when it was not possible to determine the number of colonies without ambiguity (presence of fragments of colonies, aggregation of colonies, etc.), the number was indicated by the sign "?" in the table. Taxonomic processing of the sample collections was performed by qualified expert taxonomists[2] with many years' experience with the animal group in question. In a case where the species was represented by juvenile individuals (young, without clear taxonomic features), i.e., it was not possible to identify the species, the designation *sp. juv.* was used for the taxon name. It was impossible to identify the species in some cases due to severe damage; in that case, the designation *sp.* was used as the taxon name.

The index "frequency of occurrence of the species" (P, %) – the ratio of the number of quantitative samples in which the species was encountered to the total number of quantitative samples in the area, expressed as a percentage – was used to assess the rate of occurrence (incidence) of species in the sandy bottom zone. This index is important primarily as a characteristic of food organisms, since it characterizes their availability to the consumer.

Traditional single-factor methods as well as the methods of multidimensional statistical analysis, including classification and ordination methods (Afifi and Eisen 1982) using the statistical software package Statistica 6.0 (Borovikov 2001), were used to describe the communities. A quadrate data matrix in the form of a list of benthic species for each station with quantitative characteristics of the species served as the primary basis for the analysis. The Bray-Curtis similarity coefficient between each pair of samples was calculated based on the data matrix. Dendrograms were constructed by the mean link method (Clarke and Green 1988, UNEP

[2] The following personnel of the Marin Biology Institute of the Far East Branch of the Russian Academy of Sciences, the Far East National University and the Zoological Institute of the Russian Academy of Sciences participated in taxonomic processing of the main macrobenthos groups: Candidate of Biological Sciences L. L. Budnikova (amphipods); Candidate of Biological Sciences M. V. Malyutina (isopods); Candidate of Biological Sciences G. M. Kamenev (bivalve mollusks); Candidate of Biological Sciences V. V. Gulbin (gastropods); Candidate of Biological Sciences E. V. Bagaveyeva (marine worms); Candidate of Biological Sciences S. F. Chaplygina (hydroids); Candidate of Biological Sciences V. N. Romanov (Ascidia); Candidate of Biological Sciences A. v. Chernyshov (nemertines); and Doctor of Biological Sciences V. S. Levin (Holothurioidea).

1995). Quantitative characteristics of benthos (abundance and biomass) normally have an empirical distribution that differs from the norm. Therefore, in comparison of samplings using parametric criteria, the source data were transformed based on the nature of the empirical distribution (Elliott 1977).

The entropic index of sorting of sediments was used to assess the classification of bottom sediment soils. The *entropic index of sorting* of sediments (Hs) was calculated based on the Shannon-Wiener Species Diversity Index (H) by the formula: $H_s = -\sum p_i \times (\ln p_i)$: where pi is the proportion of the i fraction in the sediment; n is the number of fractions in the analysis. This measure is independent of the type of distribution function of sediment particles by sizes and is determined solely by the divisibility of the granulometric analysis and the fraction size scale selected. The *normalized sorting index* (H_s/H_{max}, where $H_{max} = \ln n$) takes on a value from 0 (ideally graded sediments) to 1 (absolutely nongraded).

For plotting charts of the distribution of the characteristics of bottom sediments and the water layer, concentrations of contaminants and indices of quantitative abundance of macrobenthos, standard procedures of the SURFER 7 cartographic system (Surface Mapping System) were used. The cartographic system was used only for illustrating the general nature of the distribution of parameters in the water area studied. Therefore, the “simple planar surface” version of the polynomial regression method was used in calculating isolines. This method produces good results when large-scale trends in the spatial distribution of data need to be identified. The ideology of the method has been described in detail (Draper and Smith 1981). On the whole, the procedure for taking, processing and analyzing samples conformed to generally accepted scientific methods (Bilyard and Becker 1987).

RESULTS AND DISCUSSION

3. Characteristics of Water Layer and Bottom Sediments

3.1. Distribution of Water Temperature and Salinity During the Study Period

The temperature and salinity of the water surface layer were measured in the water area studied during the period from 28 July to 19 September 2003. The results of the water temperature and salinity measurements at individual stations are presented in Appendix 2, the spatial distribution of water temperature fields in the Piltun and Offshore areas in Fig. 2 and the water salinity distribution in Appendix 1 (Fig. A1.3).

Water temperature. During the study period, the temperature of the water surface layer in the Piltun Area varied to a significant degree: from 2.9 °C in July to 9.8 °C in September (Table 4). In September 2003, the water temperature was lower than in the analogous period in 2002. Reliable differences in water temperature were observed in August 2003 and 2001. In August 2001 (Fadeev 2002), the water temperature in the area was 8.78±0.8 °C, while in August 2003 it was 4.01±0.82 °C. It is possible that the lower temperatures in 2003 are related to features of the ice situation that year in the Piltun Area. According to aerial observation data of S. A. Blokhin (TINRO Center), the ice cover in the northern part of Piltun Bay in 2003 was preserved until mid-June.

Table 4. Water Surface Layer Temperature (°C) in 2003 and 2002.

Parameter	Piltun Area				Offshore Area		
	Jul 2003	**Aug 2003**	**Sep 2003**	Sep 2002	**Aug 2003**	**Sep 2003**	Sep 2002
Mean	2.96	4.01	9.87	12.01	7.95	11.38	10.31
Standard Error	0.3	0.82	0.32	0.19	0.27	0.12	0.23
Minimum	0.4	0.6	8.2	8	4.5	10.2	7
Maximum	7.2	14.1	11	15	12.2	12.5	13
Number of Samples	38	24	11	60	40	35	36

As in 2001 and 2002 (Fadeev 2002 and 2003), a spot with colder water is charted offshore from the northern part of Piltun Bay. It is possible that a stable inflow of deep-sea water is observed to a significant degree in this area during the summer (Krasavtsev et al. 2000). As in the previous two years, the water, which is warmed and freshened most is associated with the zone nearest the shore in the Piltun Area, which is the result of the inflow of warmed and freshened waters from the Piltun and Odoptu lagoons (Fig. 2A; Fig. A1.3).

The temperature of the water surface layer in the Offshore Area did not differ substantially from the data for 2002. The distribution of temperature and salinity in the area was more regular than in the Piltun Area (Figs. 2 and A1.3).

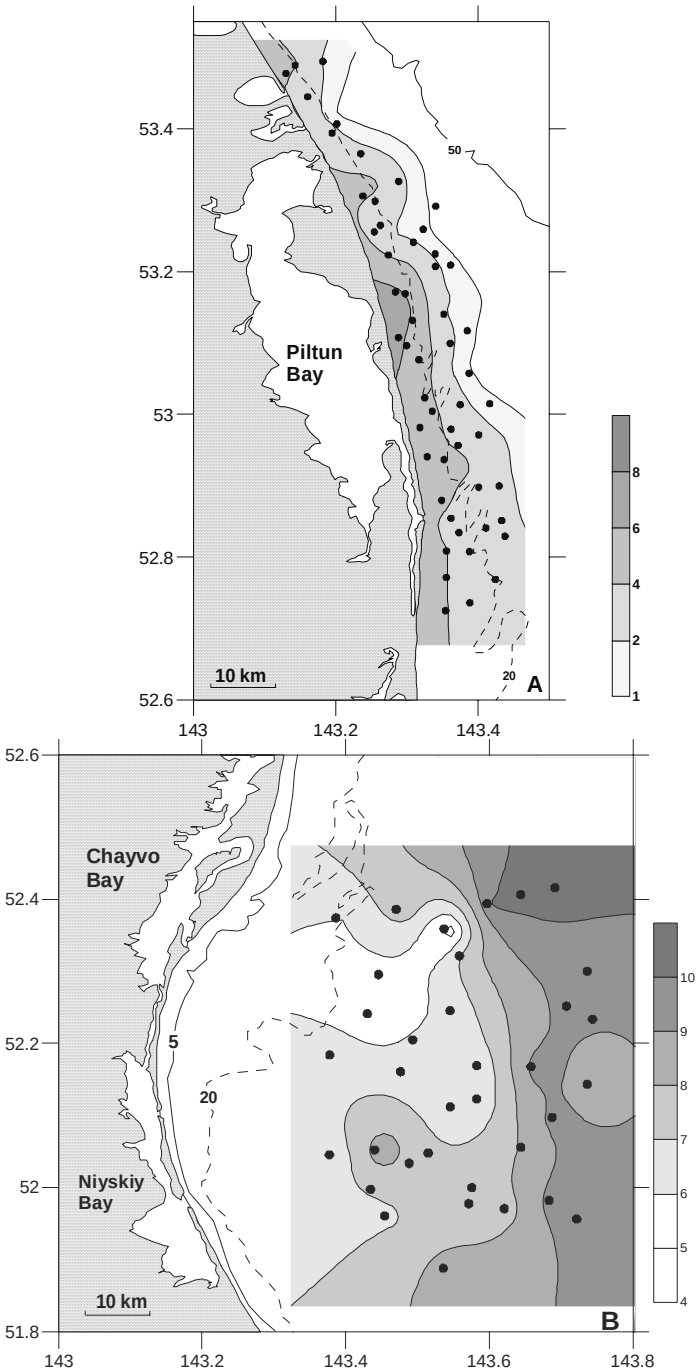

Figure 2. Distribution of temperature (T°C) of the water surface layer in the Piltun (A) and Offshore (B) areas in 2003.

3.2. Particle Size Distribution of Bottom Sediments in the Areas

The particle size distribution of bottom sediments was studied based on laboratory analyses of 150 soil samples taken at benthos stations and whale feeding sites. The sediment particle size distribution is presented in Appendix 2. The distribution of the main bottom sediment fractions (coarse silt, sand: fine, medium and coarse, and small gravel) is shown in Figs. 4-6 for the Piltun Area and Figs. 8-10 for the Offshore Area. Figures 3 and 7 show the distribution of depths in the Piltun and Offshore areas according to the data of stations in these areas.

A sharp prevalence of sandy (psammite) fractions is characteristic of the bottom sediments throughout the area. Of 150 stations in all areas, sands (fine – 65%; medium – 15%) are prevalent at 80% of the stations, and gravel-pebble bottoms mixed with sands of various grain sizes account for 15%. The proportion of the fine sand fraction is in excess of 60% at most of the stations.

Piltun Area. In the process of describing the distribution of soils according to field data from 2001 and 2002, it was observed that fine sandy bottoms are prevalent at depths up to 10-15 m throughout the area. As the depth increases, they are replaced by medium and coarse sands and gravel-pebble bottom areas mixed with sands of various grain sizes (Fadeev 2002, 2003).

According to data of the 2003 expedition, fine sands are prevalent at 50% of the stations in this area, and medium sands are prevalent at 24% of the stations. Gravel-pebble bottoms mixed with sands of various grain sizes are encountered in patches at depths greater than 15 m (Fig. 4). The distribution of fine (aleurite-pelite) bottom fractions is representative. Despite considerable entrainment of fine sediment fractions from the numerous coastal lagoons, the proportion of aleurite-pelite fractions in the bottom sediments of the area is very small (not more than 6%). The active hydrodynamics of the area probably promotes the transfer of fine soil fractions to greater depths. The effect of lagoons on the accumulation of aleurite-pelite fractions is traced in the form of two sections: off Odoptu Bay and Piltun Bay (Fig. 6). This tendency was observed previously in data for 2001 and 2002.

Offshore Area. The depths in the Offshore Area increase smoothly from 20 to 50 m (Fig. 7). With an increase in the depth, there is an increase in the proportion of the fine sand fraction in the bottom (Fig. 10D). On the whole, fine sands were prevalent at 92% of the stations in this area. Gravel bottoms and coarse-grained sand have a patchy distribution (Figs. 8 and 9).

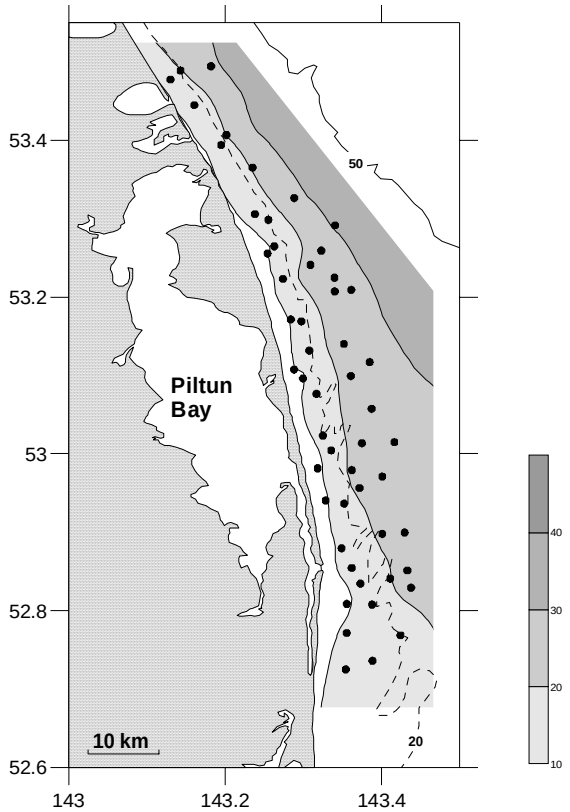

Figure 3. Distribution of depths (m) in the Piltun Area.

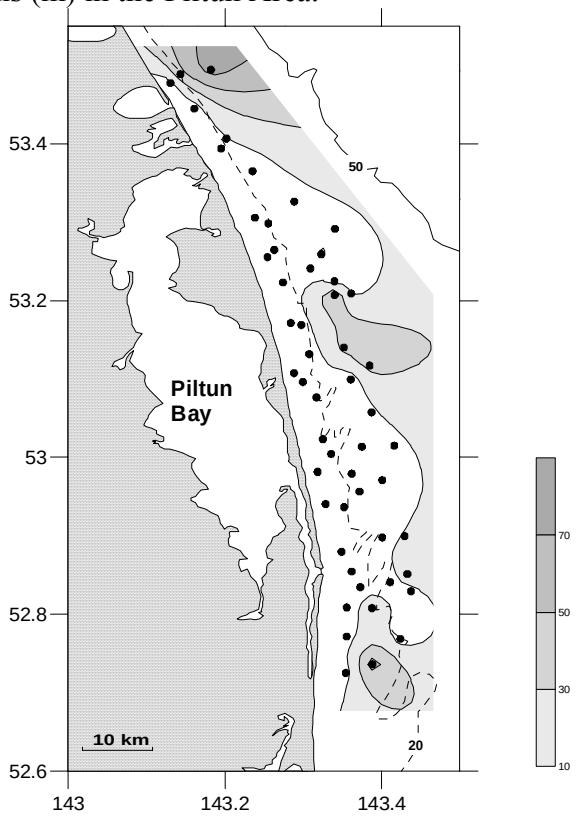

Figure 4. Distribution of bottom sediment fractions (% of dry sediment weight) in the Piltun Area: gravel fraction (A; > 1 mm).

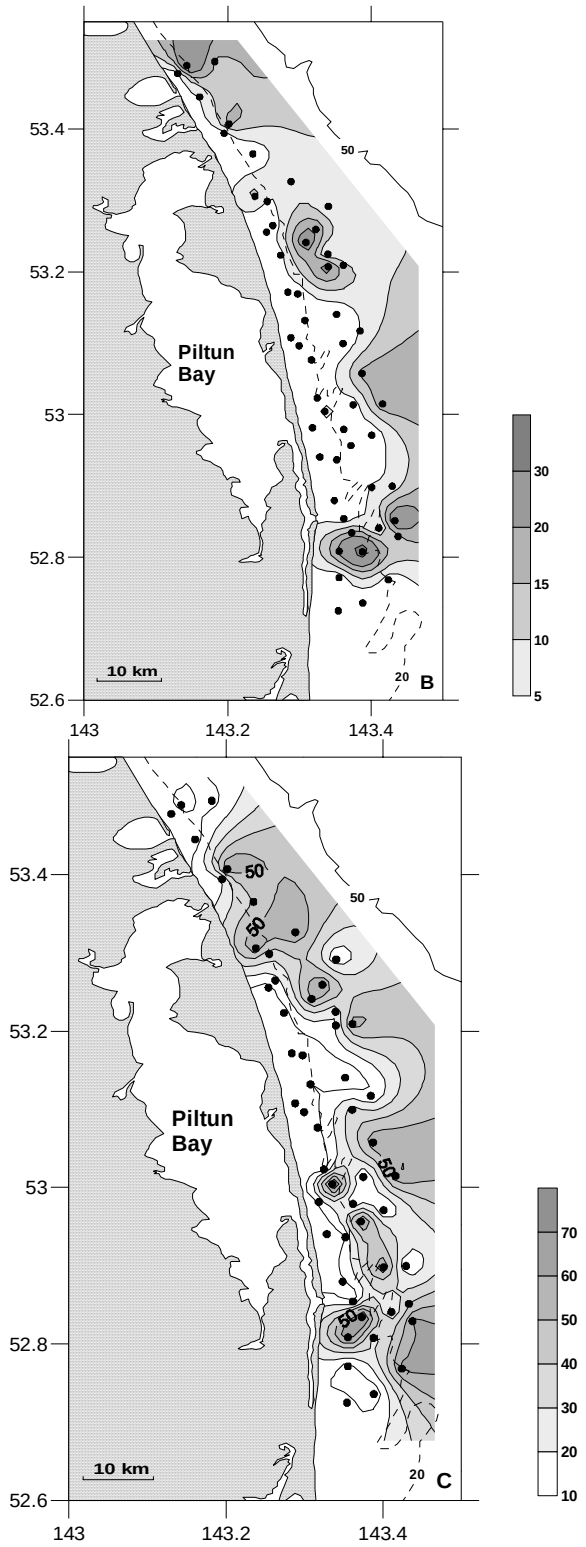

Figure 5. Distribution of bottom sediment fractions (% of dry sediment weight) in the Piltun Area: coarse sand (B; 0.5 – 1 mm); medium sand (C; 0.25 – 0.5 mm).

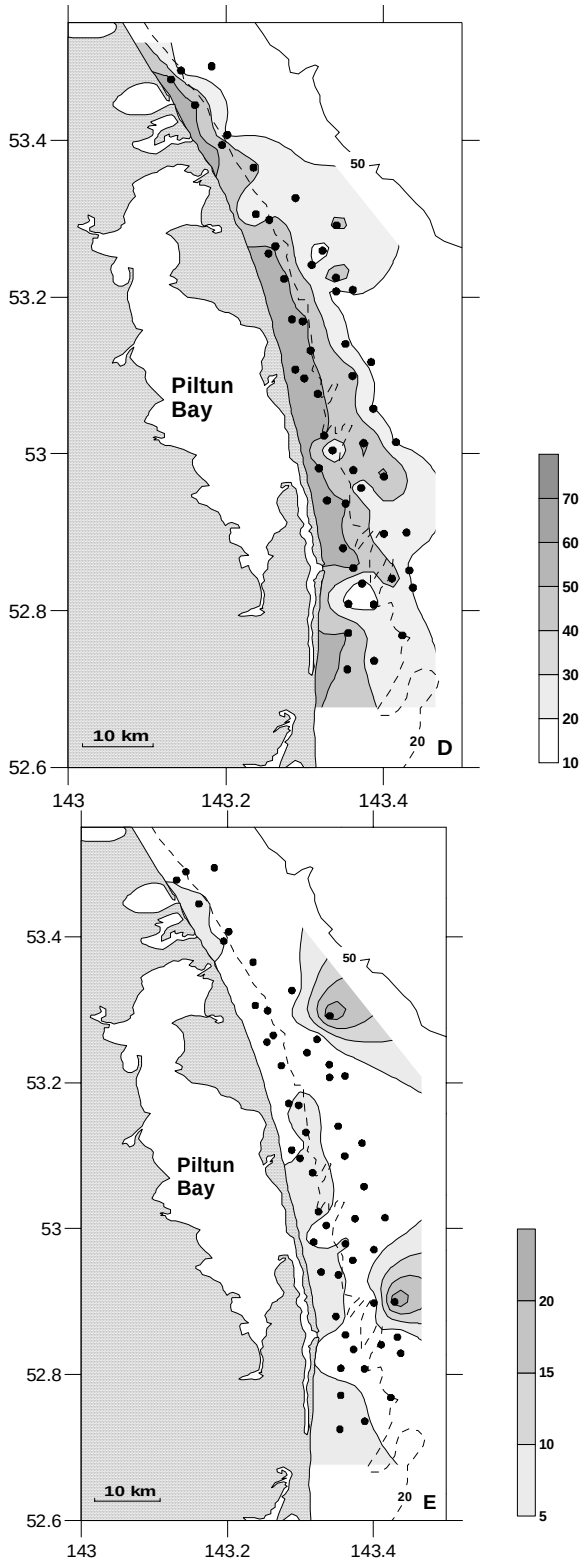

Figure 6. Distribution of bottom sediment fractions (% of dry sediment weight) in the Piltun Area: fine sand (D; 0.1 – 0.25 mm); silt (E; < 0.1 mm).

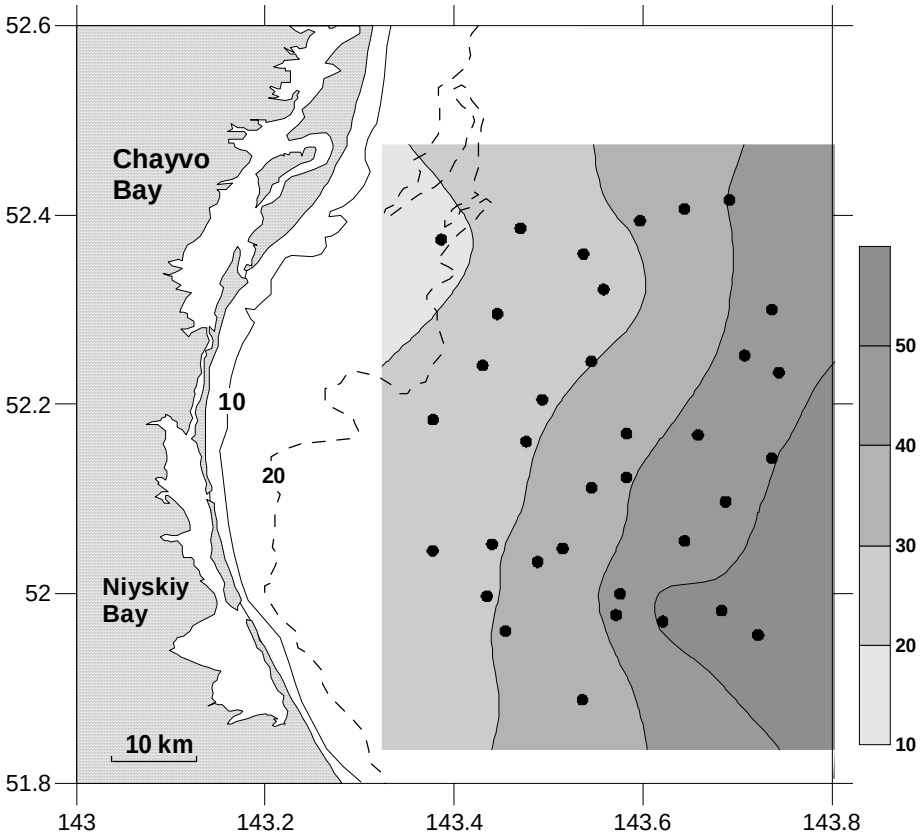

Figure 7. Distribution of depths (m) in the Offshore Area.

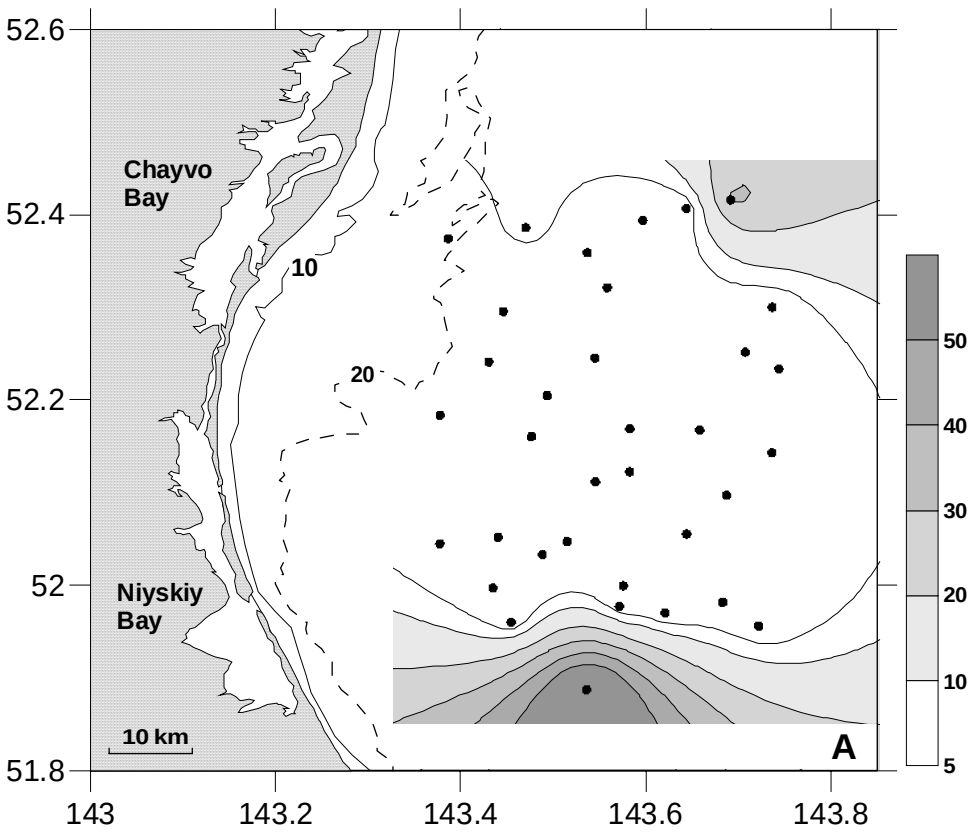

Figure 8. Distribution of bottom sediment fractions (% of dry sediment weight) in the Offshore Area: gravel-pebble fractions (A; > 1 mm).

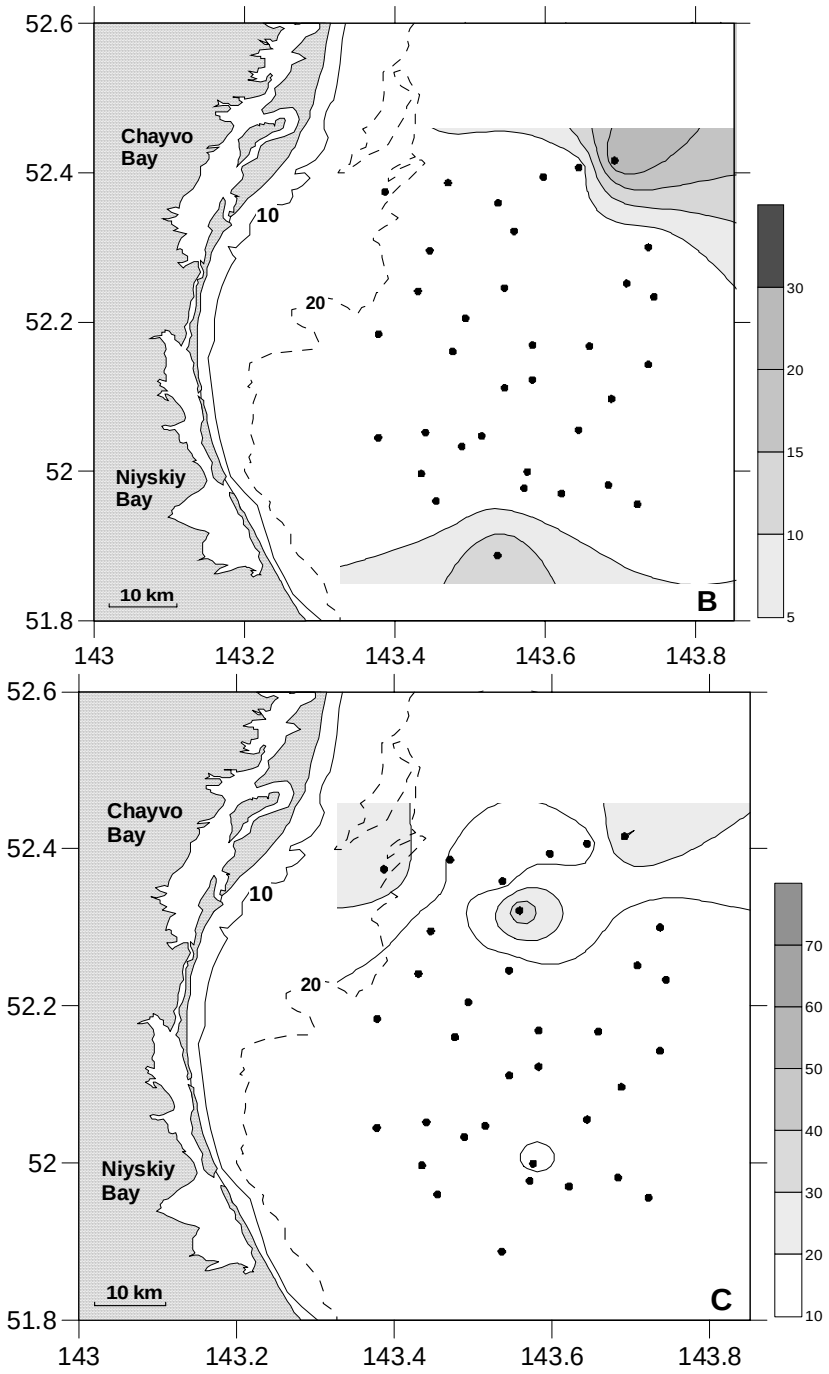

Figure 9. Distribution of bottom sediment fractions (% of dry sediment weight) in the Offshore Area: coarse sand (B; 0.5 – 1 mm); medium sand (C; 0.25 – 0.5 mm).

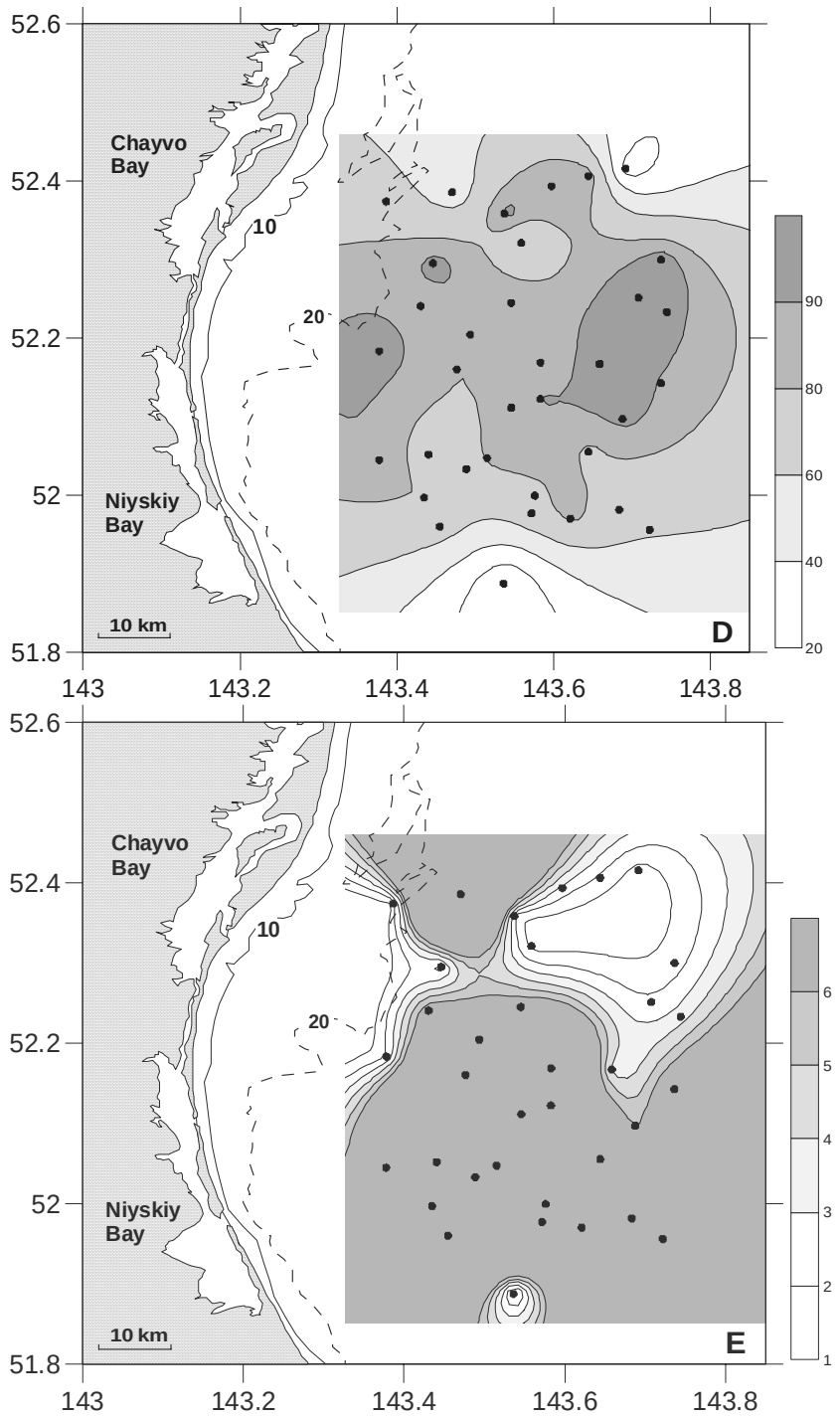

Figure 10. Distribution of bottom sediment fractions (% of dry sediment weight) in the Offshore Area: fine sand (D; 0.1 – 0.25 mm); silt (E; < 0.1 mm).

3.3. Classification of Stations According to Similarity of Particle Size Distribution

Data on the 10-fraction compositions of bottom sediments at stations in the Piltun and Offshore areas and at whale feeding sites have been grouped (classified) by procedures of cluster analysis (Ward's clustering method, Euclidean distanceы). Dendrograms are presented in Fig. 11.

It follows from the dendrograms that 3 to 4 groups of stations can be distinguished in all areas in regard to similarity of particle size distribution – A, B, C and D. Table 5 gives averaged characteristics for each sediment group for the Piltun and Offshore areas based on materials for 2003 and 2001-2002.

Table 5. Characteristics of Sediment Groups in Piltun and Offshore areas.

Sediment groups	Sediment fractions						H_s	H_s/H_{max}	Code
	Ga	Gr	Sc	Ss	Sf	Al+Pe			
Piltun Area According to Data of 2003									
A	0.83	1.98	2.12	10.93	**75.48**	8.66	1.12	0.42	Sf
B	0	4.81	13.61	**63.85**	17.12	0.60	1.50	0.64	Sm+Sf
C	5.01	**44.30**	20.28	16.80	11.88	1.74	2.16	0.84	Gr+Scmf
Piltun Area According to Data of 2002 (Fadeev 2003)									
A	0.39	1.21	0.77	11.41	**84.52**	1.7	0.82	0.32	Sf
B	0.26	8.11	9.64	**47.81**	32.64	1.54	1.77	0.68	Sm+Sf
C	1.05	37.28	14.81	17.49	25.96	3.41	2.12	0.82	Gr+Sfmc
Piltun Area According to Data of 2001 (Fadeev 2002)									
A	0	1.00	0.80	5.90	**89.50**	2.80	0.65	0.28	Sf
B	0.20	3.40	5.60	40.80	**48.40**	1.60	1.55	0.60	Sf+Sm
C	9.70	**46.80**	18.80	12.00	8.90	3.90	2.15	0.83	Gr+Scm
Offshore Area According to Data of 2003									
A	0	0.31	0.31	3.32	**90.00**	6.06	0.60	0.26	Sf
B	0	0.05	0.75	33.65	**64.70**	0.85	1.05	0.45	Sf+Sm
C	3.00	**50.60**	20.35	20.05	5.55	0.45	1.85	0.71	Gr+Scm
D	0.18	0.38	0.44	1.81	**72.75**	24.43	1.02	0.39	Sf+Al
Offshore Area According to Data of 2002 (Fadeev 2003)									
A	0.71	2.74	2.4	15.65	**75.4**	3.1	1.20	0.47	Sf
B	0.31	3.49	5.41	**52.03**	37.55	1.21	1.52	0.59	Sm+Sf
C	0.44	18.49	21.83	36.69	20.66	1.89	2.07	0.86	Gr+Scmf

Notes for Tables 5 and 6: for abbreviations of sediment fractions, see Table 3. H_s is the entropic index of sorting of bottom sediments, and H_s/H_{max} is the normalized entropic index of sorting. Boldface distinguishes the dominant bottom fractions; values for fractions that make up the bottom base, in the absence of dominant bottom fractions, are **shaded**.

Group A in all areas is made up of stations with a dominant fraction of 0.1-0.25 mm (fine sand) in the sediment. According to data of 2001-2003, the proportion of this fraction varies from 75.5 to 89.5% of dry sediment weight in sediments of the Piltun Area. The normalized entropic index of sorting is 0.28-0.37 (ideally graded sediment has an index of 0). The average depth of occurrence of sediments of this group in the Piltun Area is 14.1 m.

Group B includes stations where two fractions are prevalent in the bottom sediment: 0.1-0.25 mm (fine sand) and 0.25-0.5 mm (medium sand). The value of the entropic index of sorting varies from 0.6 to 0.68. The average depth of the sediments of this group in the Piltun Area is 20.4.

Group C is made up of stations without clear dominance of any of the fractions. The bottom is a gravel fraction mixed with sand fractions. Fractions of 0.5-1.0 mm (coarse sand) and 1.0-2.0 mm (small gravel) have the highest values. The entropic index of sorting varies from 0.6 to 0.68 (absolutely nongraded sediment has a value of 1). The average depth of the stations of this sediment group in the Piltun Area is 22.6 m.

Hence *group **A*** corresponds to well-sorted fine-grained sands, *group **B*** to medium-sorted sands of varying grain size (a mixture of fine and medium sands), and *group **C*** corresponds to poorly sorted gravel bottoms mixed with sands of varying grain size, pebbles and exposed detritus.

The composition of the sediment groups in the Piltun Area described according to 2003 data matches the results of bottom sediment analysis based on the materials of the 2001 and 2002 studies well (Table 5).

Based on 2003 data, a fourth ***group D***, in addition to *group A-C*, is distinguished in the Offshore Area (Fig. 11.3, Table 5). The group includes stations where fine sand is prevalent, with a significant admixture (24.4%) of the aleurite fraction. The proportion of the aleurite fractions did not exceed 8% at the stations in 2002.

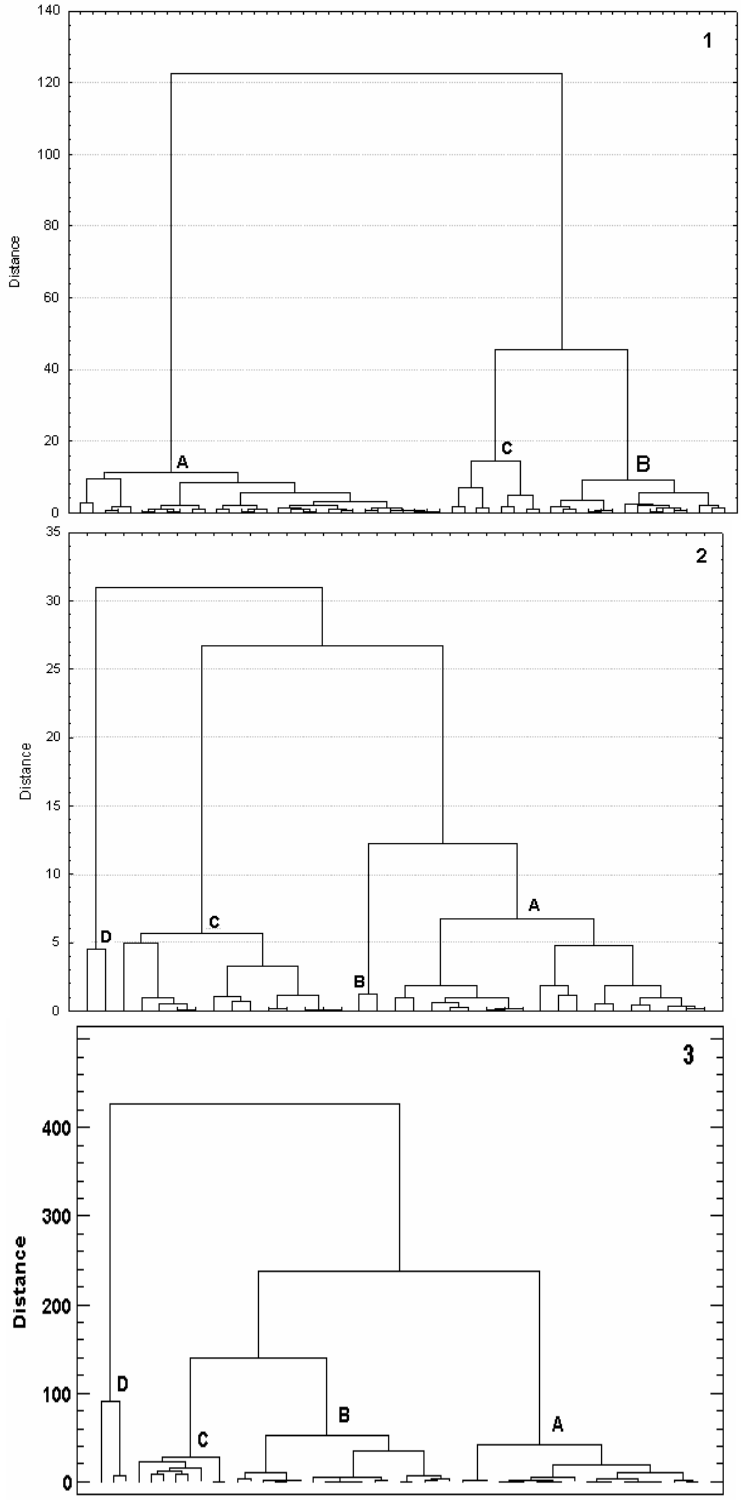

Figure 11. Classification of station similarity according to the 10-fraction sediment composition in the areas.

1 – Piltun Area;
2 – Offshore Area;
3 – Stations at gray whale Feeding Sites;
A, B, C, D – sediment groups.

3.4. Particle Size Distribution of Bottom Sediments at Gray Whale Feeding Sites

The first data on the compositions of sediments at gray whale feeding sites in the Piltun and Offshore areas were obtained in 2001 and 2002 (Fadeev 2002, 2003). Bottom sediment samples were taken at nine gray whale feeding sites in the Piltun Bay area in 2001. The average depth of the feeding sites was 9±0.9 m. An analysis indicated that the bottom was fine-grained sand at the feeding sites in all cases (proportion of the fraction 0.1-0.25 mm from 73.95 to 94.34%); i.e., all the bottoms are *group A*.

In 2002, bottom sediments were sampled at 46 whale feeding sites in the Piltun Area (21 stations; average depth 12±0.7 m) and the Offshore Area (25 stations; average depth 41±0.9 m). Sandy bottoms were prevalent at all the feeding sites in the Piltun Area. Fine-grained sands were prevalent at 53% of the stations, medium sands at 38%, and a mixture of fine and medium sands was observed at 9% of the stations. Sandy bottoms were also prevalent at the whale feeding sites in the Offshore Area. Medium sands and a mixture of find and medium sands were prevalent at 36% of the stations, and 12% of the stations had fine and coarse sands (Fadeev 2003).

In 2003, bottom sediment samples were taken at 51 whale feeding sites in the Piltun (12 stations; average depth 18.6±1.6 m) and Offshore Areas (39 stations; average depth 50.8±0.9 m). Well-sorted fine sands (*sediment group A*) were prevalent at all gray whale feeding sites in both areas (Table 6). About 15% of the whale feeding sites had medium-sorted mixed sandy bottoms (medium and fine sands). A small number of whale feeding sites in the Offshore Area had a fine sandy bottom mixed with the aleurite fractions (less than 25%) (*sediment group D*).

Table 6. Characteristics of Sediment Groups at Whale Feeding Sites.

Sediment groups	Sediment fractions						H_s	H_s/H_{max}	Code
	Ga	Gr	Sc	Sm	Sf	Al+Pe			
Whale feeding sites (2003 stations)									
A	0.85	1.07	1.48	4.62	**85.02**	6.96	0.87	0.38	Sf
B	0.34	1.28	3.37	22.91	**66.61**	5.49	1.37	0.59	Sf+Sm
C	0	6.58	18.7	**59.47**	14.73	0.52	1.61	0.69	Sm+Scf
D	0	0.16	0.27	1.63	**73.00**	24.94	0.97	0.42	Sf+AlPe
Whale feeding sites (2002: Fadeev 2003)									
A	0.73	2.14	1.34	9.98	**81.97**	3.84	1.00	0.39	Sf
B	0.22	5.98	4.79	**57.83**	29.65	1.53	1.54	0.60	Sm+Sf
C	0.38	26.61	34.6	30.22	6.54	1.65	1.95	0.75	Gr+Scm
D	13.44	**64.65**	4.02	2.08	10.04	5.77	1.67	0.65	Grs

4. Benthos Composition and Quantitative Distribution in the Areas

In light of the fact that the areas in question differ considerably in regard to environmental conditions and the nature of the bottom population, the benthos distribution is considered separately in each of the areas: Piltun and Offshore.

In the Piltun Area, benthos studies were performed in 2001 and 2002. In the Offshore Area, field work was started in 2002. Diving studies in 2001 indicated that the highest forage benthos biomass levels are observed in the zone nearest the shore in the Piltun Area, at depths of less than 15 m. During the 2002 expedition, bottom grab samples were collected from aboard ship, which did not allow obtaining material in areas with the highest forage benthos biomass levels in the depth range of 5-10 m.

4.1. Piltun Area

In 2003, there were 63 bottom grab sampling stations in the area at depths of 8 to 33 m (189 bottom grab samples, average collection depth 18.7±0.9 m). In this process, there were 10 stations in the range of 8-10 m. A diagram of locations of the stations is shown in Fig. 12, and a combined map of the stations for 2002 and 2003 is shown in Fig. A1.1 (Appendix 1).

There were 60 stations within the area during the 2002 expedition at depths of 11 to 35 m (181 bottom grab samples, average depth 20.4±0.8 m).

The benthos distribution is considered below based on the materials of the field studies in 2003 and 2001-2002 (Fadeev 2002, 2003).

4.1.1. Quantitative Abundance and Distribution of Benthos Based on Data for 2003 and 2001-2002

Total benthos biomass. An increase in biomass with depth is observed in the area of Piltun Bay based on the materials for 2001. Biomass increases from 321.1 g/m^2 at a depth of 5 m to 1153 g/m^2 at 30 m and averages 984.7±132.3 g/m^2 (Table 7).

The increase in total biomass with depth is defined by the course of the change in the biomass of flat sea urchins, as their share in the total biomass of the area reaches 61.1%. The biomass of other groups decreases with depth. The proportion of the biomass of basic groups in the total biomass is as follows: crustaceans – 17.2%; bivalve mollusks – 13%. The proportion of benthos that gray whales could potentially forage on (amphipods, isopods) in the total biomass decreases with depth: from 59% at 5 m to 4% at 20 m. The most substantial changes in biomass of benthos forage groups occur in the range of 15-20 m (Fadeev 2002).

The average biomass for the entire area in 2002 was 481.5±102.1 g/m^2 at depths of 11–30 m (the minimum benthos collection depth was 11 m), with a colony density of more than 6600

spec./m^2. The flat sea urchin *Echinarachnius parma* has the greatest proportion in the total biomass (71.3%). The proportions of the other groups are significantly smaller: amphipods make up 9%, bivalve mollusks – 8.5%, and isopods – 4%. An increase in the total benthos biomass occurs with depth, from 274 g/m^2 in a range 11–15 m to 755 g/m^2 at 30 m (Table 7). This increase is defined by the increase in the biomass of flat sea urchins as the depth increases. The proportion of the sea urchins in the average biomass increases from 13% in the range 11–15 m to 87% at 30 m. The proportion of benthos groups which are important from the point of view of the diet of whales decreases sharply with depth: amphipods from 40% in the range 11–15 m to 1% at 30 m, bivalve mollusks – from 24% to 2%, and isopods – from 14% to 1% (Fadeev 2003).

According to materials from 2003, the average benthos biomass in the Piltun Area at depths of 8–30 m (minimum collection depth, 8 m) was 555.7±69.4 g/m^2 at a colony density of more than 6000 spec./m^2. The flat sea urchin *E. parma* accounts for the largest proportion (70%) in the benthos biomass. The proportion of sea urchins in the total benthos biomass increases as the depth increases, from 20% at 15 m to 95% at 25-30 m. The biomass of the main whale food component – amphipods – decreases from 146 g/m^2 (74% of the total benthos biomass) at a depth of 8-11 m to 9 g/m^2 (1.2%) in the range of 26-30 m (Table 7; Figs. 13 and 14). The sharpest changes in the quantitative abundance of benthos occur in the range of 15-20 m. At most of the stations in the Piltun Area, it is at these depths that a sharp decrease in the biomass of amphipods, isopods and bivalve mollusks and an increase in flat sea urchin occur.

Hence, materials from 2003 confirm the basic trends in the distribution of total benthos biomass in the Piltun Area observed in the analysis of 2001 and 2002 collections.

Biomass of basic taxonomic groups and mass species of benthos. Crustaceans (amphipods, isopods, decapod crustaceans and cumaceans), bivalve mollusks and marine worms are of the greatest interest for assessing food supplies for the diet of the gray whale in the water area studied.

Crustaceans (*Crustacea*). The basic crustacean groups have a high frequency of occurrence in the collections from 2003: amphipods – 100%; cumaceans – 91%; isopods – 88%. Despite the high frequency of occurrence of crustaceans in the Piltun Area, their proportion in benthos biomass varies considerably within the water area.

Based on materials for 2001, the total proportion of crustaceans in macrobenthos biomass in the area of Piltun Bay was 45.1% in the range of 5–10 m and only 10% in the range of 26–30 m. Three types of changes in crustacean biomass were observed with increasing depth.

Amphipods and isopods had maximum biomass in the range of 5–15 m and decreased sharply below 20 m. The variation in cumacean biomass had an opposite pattern.

Table 7. Macrobenthos Biomass Distribution (g/m^2) in the Piltun Area Based on Materials of Field Studies in 2003 and 2002.

Groups	Depth										Entire Area	
	8-10 m		11-15 m		16-20 m		21-25 m		26-30 m			
	2003	2001	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002
Amphipoda	**146.6**	118.0	**88.7**	110.9	5.2	22.5	23.2	28.3	9.2	5.0	54.6±8.7	42.7±8.6
Isopoda	15.7	103.5	10.3	38.6	45.6	18.5	12.8	13.1	33.0	5.6	23.5±3.7	19.0±4.6
Bivalvia	27.9	219.8	21.9	65.0	56.8	11.7	13.7	67.8	120.8	16.9	48.2±11.9	40.4±8.8
Cumacea	1.3	3.8	1.7	5.4	0.1	3.7	4.2	5.8	2.5	48.9	2.1±0.9	11.0±2.9
Decapoda	0.2	5.8	0.0	2.3	0.3	2.2	6.3	2.1	7.6	13.8	2.9±1.4	5.1±1.3
Echinoidea	6.7	0	29.4	36.9	**684.1**	247.9	**718.7**	428.1	**511.4**	660.5	390.1±64.7	343.4±114.4
Polychaeta	0.9	41.2	2.5	11.3	4.5	16.0	36.0	11.4	48.0	9.7	18.4±5.3	12.1±2.5
Rest	3.3	2.5	6.7	3.5	4.1	3.4	35.0	10.7	32.0	14.4	16.2±3.2	8.0±2.2
Total	**202.5**	**494.6**	**161.3**	**273.9**	**800.6**	**330.0**	**849.7**	**567.4**	**764.5**	**754.7**	**555.7±69.4**	**481.5±102.1**

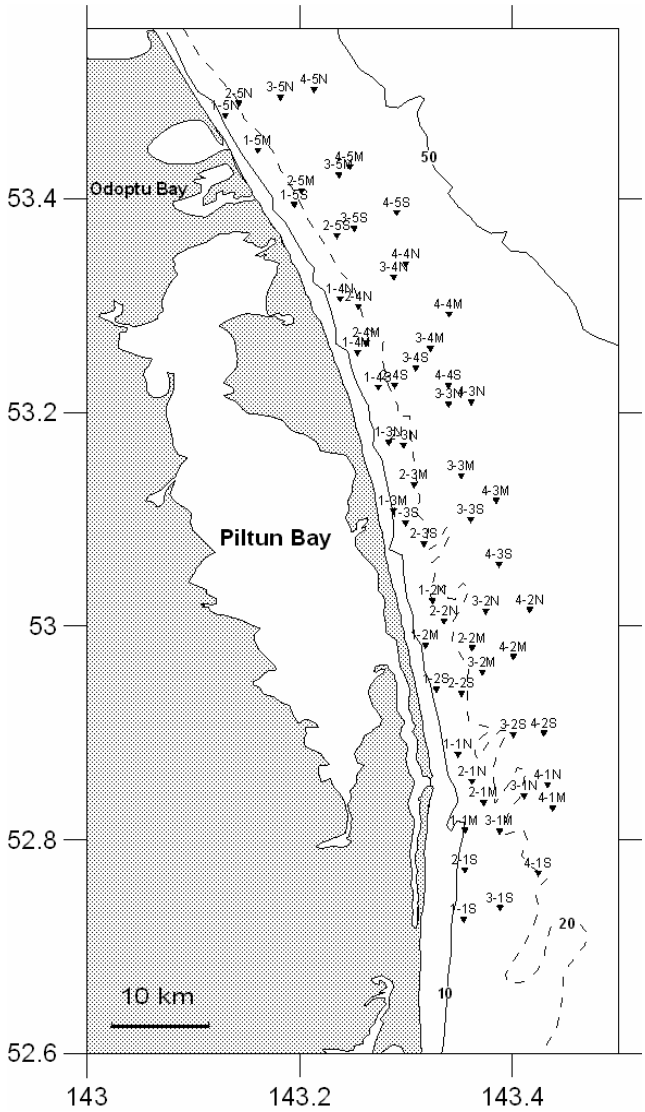

Figure 12. Locations of stations in the Piltun Area in 2003.

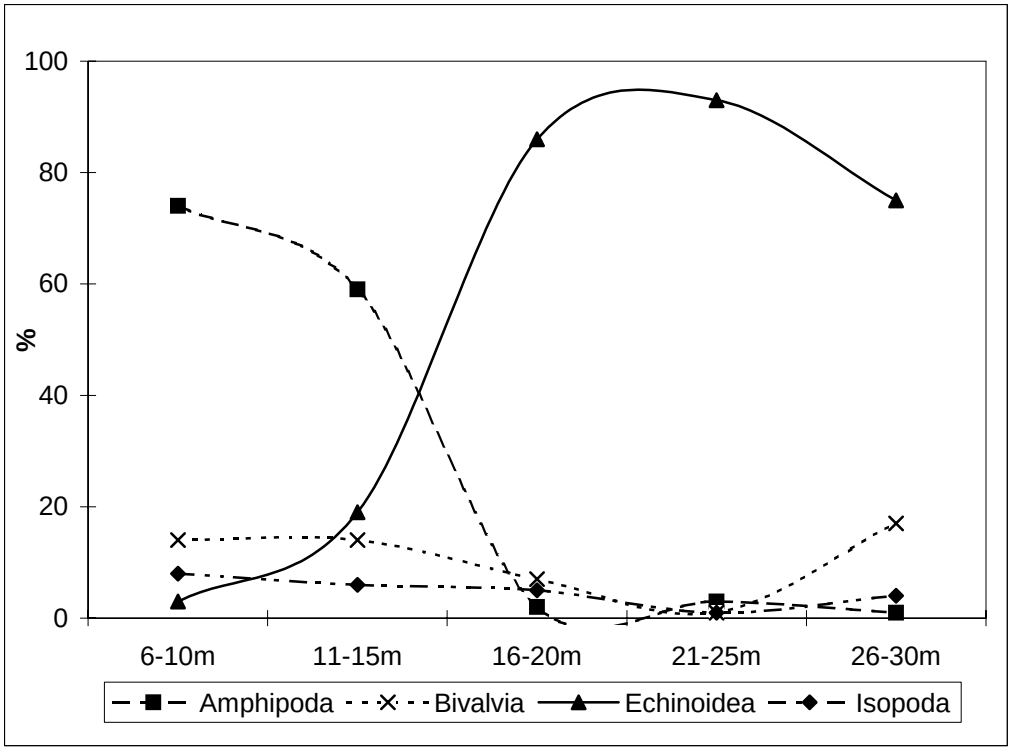

Figure 13. Variation in the proportions (%) of 4 benthos groups in total benthos biomass by depth in the Piltun Area in 2003.

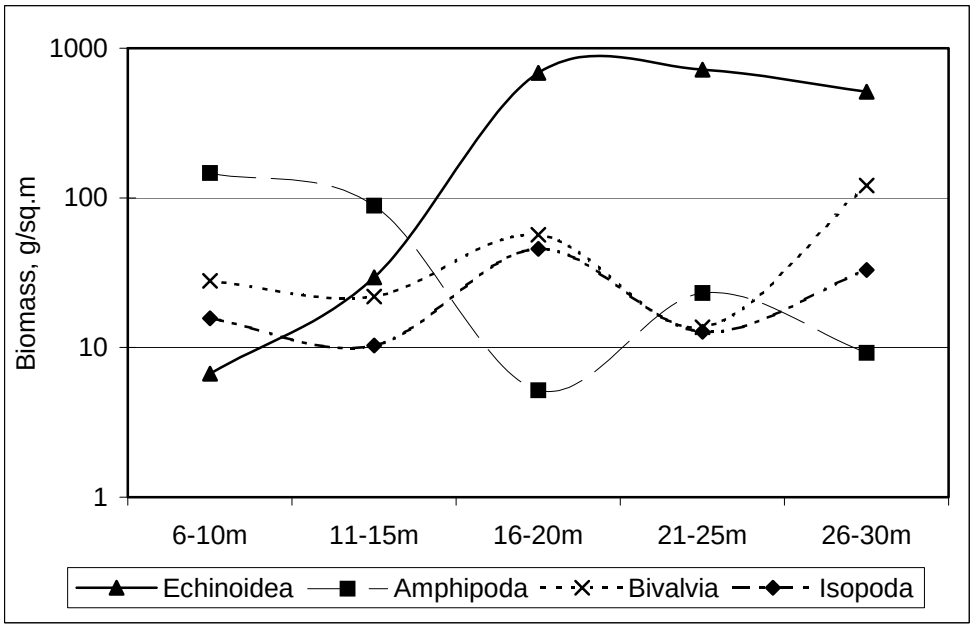

Figure 14. Variation in biomass (g/m^2) of four benthos groups by depth in the Piltun Area in 2003.

It is at a minimum at depths of less than 20 m and increases with depth. The biomass of decapod crustaceans was similar at all depths. Similar trends were observed in 2002: the total proportion of crustaceans was 55% in a range of 11-15 m and decreased to 7% at depths of 26-30 m (Table 7).

Based on materials from 2003, the proportion of crustaceans in biomass reached 79% at depths of 8-10 m and decreased to 5% in the range of 26-30 m. The trend of a proportion in benthos biomass which decreases with depth is clearest for amphipods (Table 7, Fig. 13). Figure A1.6 (Appendix 1) shows the spatial distribution of crustaceans in the Piltun Area based on materials from 2003 and 2002 (123 stations). Some patchy areas of high crustacean biomass are observed in the coastal zone. At the same time, the clear trend of a decrease in the proportion of crustaceans in the total benthos biomass with increasing depth is observed.

Isopods (*Isopoda*). According to materials of 2001, the relative proportion of isopods in the total macrobenthos biomass was 14.1% in the range of 5–30 m and only 2.4% at depths of 11–30 m. The average isopod biomass in this range was 25.0 g/m^2. It was demonstrated that the small isopod *Synidotea cinerea* (average body weight 0.02 g; Photo 1) has the greatest significance in the benthos biomass of the Piltun Area. This isopod had the highest frequency of occurrence – 86% – of all the macrobenthos species in the study areas at depths of 5-30 m. The maximum biomass values for this species were observed at depths of less than 15 m. Only individual *S. cinerea* are encountered at greater depths. According to the materials of diving studies, the greatest colony density of *S. cinerea* (up to 5000 spec./m^2) is associated with tube mats of the sea worm *Onuphis shirikishinaiensis*. The second species – the large isopod *Saduria entomon* (body weight up to 5 g, average weight 2.087 g; Photo 2) – is encountered significantly less frequently in the Piltun Area (P = 25%). A synonymous name –*Mesidotea entomon* – is used for this species in some published works. The biomass of this species increases with depth. In the zone of mass development of sea urchins, this species can form local accumulations, which made it possible to consider the species as a potential prey item for gray whales (Fadeev 2002).

In 2002, in the range of 11–30 m, frequency of occurrence of *Synidotea cinerea* was 34%, with an average biomass of 14.3 g/m^2. The maximum colony density is 1990 spec./m^2. Accumulations with the highest density were associated with the southern part of the Piltun Area (Fig. 15B). The large isopod *Saduria entomon* had a frequency of occurrence rate of 16%. The biomass of this species at depths of 11 to 30 m varied from 1.5 to 56 g/m^2. According to the data from 2002, the proportion of isopods in the total macrobenthos biomass at depths of 11–30 m was 6.6% at an average biomass of 19 g/m^2.

Photo 1. Bottom grab sample with isopods *Synidotea cinerea.*
Is 1 – isopods *Synidotea cinerea,*
Is 2 – juvenile isopod *Saduria entomon.*

Photo 2. Large isopod *Saduria entomon.*

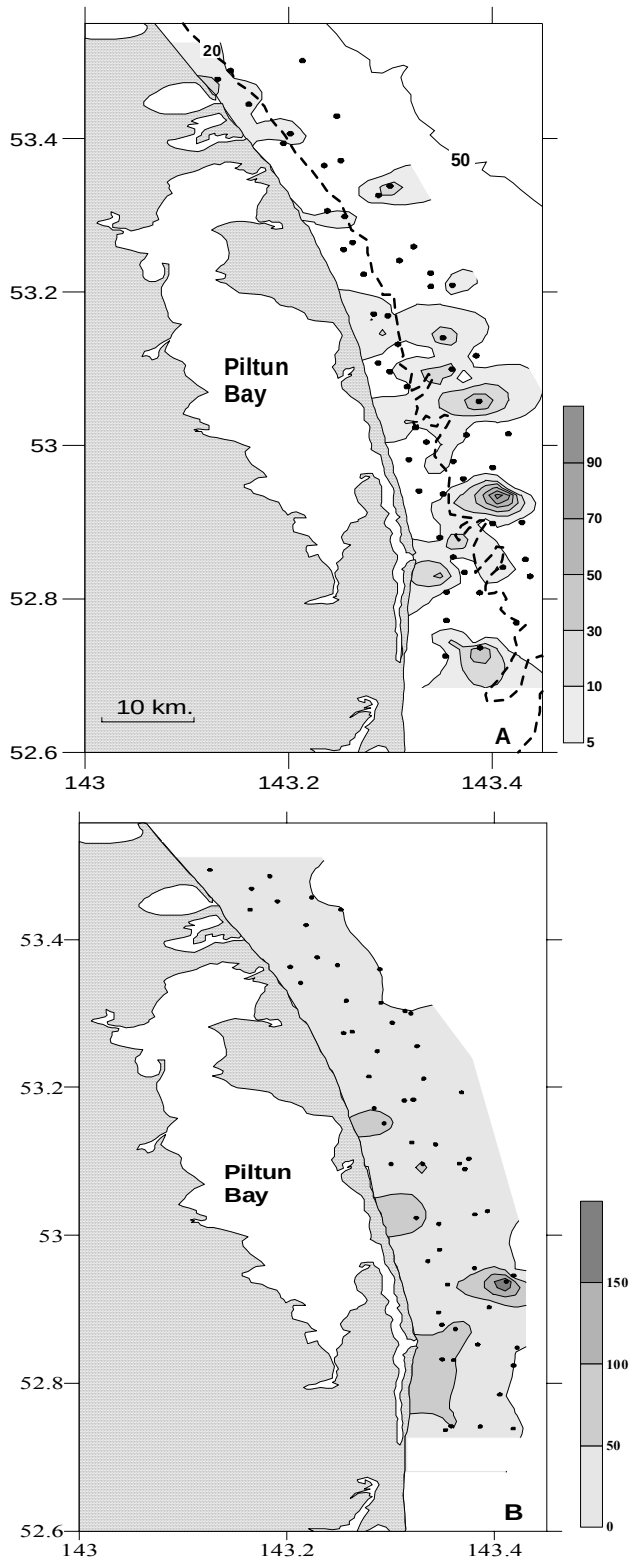

Figure 15. **Isopod** biomass distribution (g/m^2) according to materials from 2003 (A) and 2002 (B) in the Piltun Area.

The proportion of isopods in the benthos biomass at depths of 8–30 m was 4% at an average biomass of 23.5 g/m^2 in collections from 2003 (Table 7). No clear trend involving a decrease in isopod biomass with increasing depth was observed (Fig. 14). Moreover, the highest biomass values (more than 120 g/m^2) were observed at depths greater than 18 m. The nature of the spatial distribution of isopods in the water area also differed somewhat in 2003 and 2002. A relatively even distribution of isopod biomass at depths greater than 15 m was observed in 2002, and local spots with high biomass were noted mainly in the coastal zone offshore of the southern part of Piltun Bay (Fig. 15B). The biomass distribution had a distinct patchy nature in 2003. Local areas of high biomass were observed not only in the shallow coastal zone but also at depths greater than 20 m (Fig. 15A).

The patchy nature of the isopod biomass distribution in the shallow zone is conditioned by local accumulations of small isopods *Synidotea cinerea* (Photo 1). The density of this species in the accumulations reaches 3600 spec./m^2 with biomass of 55 g/m^2. At depths greater than 15 m, areas with high isopod biomass are the result of accumulations of large isopod *Saduria entomon* (Photo 2). The biomass of this species reaches 128 g/m^2 at a colony density of 75 spec./m^2.

It must be mentioned that such accumulations are rare and occupy a small area in the flat sea urchin zone. Accumulations of *Saduria entomon* with a biomass of more than 30 g/m^2 were observed at 6 stations in 2003. At each of these stations, isopods were present in only one bottom grab sample of the three samples taken at the station. Flat sea urchins were prevalent in the other two samples at these stations, with no isopods and with a biomass up to 1200 g/m^2.

The proportion of samples with isopods is only 6%, in light of the fact that 99 samples were obtained in the area with depths greater than 15 m in 2003, and less than 3% including bottom grab collections from 2002. However, these figures do not rule out the possibility of whales' feeding at depths greater than 20 m in the sea urchin zone in individual cases. It must be taken into account, however, that the total isopod biomass there is not comparable to the total biomass of amphipods and isopods *Synidotea cinerea* in the shallow zone of the Piltun Area. In addition, *Saduria entomon* is an active predator-cannibal (Leonardsson 1991; Sparrevik and Leonardsson 1998), and the accumulations it forms are temporary.

Saduria entomon is a saltwater Pan-Arctic circumpolar species represented by relic populations in the boreal zone. It inhabits a broad depth range of 0-44 m in the Arctic (Crimmon and Bray 1962) and 1-270 m in the Baltic Sea (Yarvekyulg 1979). According to published data, the maximum habitat temperature in the Arctic and the seas of the Far East is 10 ºC (Crimmon

and Bray 1962). The species reaches sexual maturity at the age of 3-4 years (Yarvekyulg 1979). It inhabits the lagoons of Eastern Sakhalin and is encountered throughout the Piltun lagoon, where it is the only predator among the epibenthic invertebrates (Kafanov et al. 2003).

Amphipods (*Amphipoda*). According to data from 2001, 10 species of amphipods had a frequency of occurrence higher than 25% at depths of 5–30 m in the water area studied, and 3 species had a frequency of occurrence higher than 50% (*Eohaustorius eous eous* – 81%; *Pontharpinia longirostris* – 75%; *Pontoporeia affinis* – 71%). The average amphipod biomass for the entire area at depths of 11–30 m was 114.1±15.7 g/m^2. It was noted that the most substantial changes in biomass and frequency of occurrence of mass species of amphipods occur in the range of 15-20 m in the Piltun Area (Fadeev 2002). In the 2002 collections, among the species with a frequency of occurrence higher than 25% in the range of 11–30 m, nine species had the greatest biomass values: *Grandifoxus longirostris, Eohaustorius eous eous, Pontoporeia affinis, Eogammarus schmidti, Atylus collingi, Pontharpinia robusta, Anonyx nugax* and *Westwoodilla sp.* The average amphipod biomass for the entire area was 42.7 g/m^2. A sharp decrease in amphipod biomass occurred at depths of 15-20 m (Fadeev 2003).

In the materials for 2003, 37 amphipod species were recorded in the Piltun Area at depths of 8-30 m (Appendix 4). Of these, six species had a frequency of occurrence (P) greater than 50%: *Eohaustorius eous eous* (P = 100%), *Pontoporeia affinis* (98%), *Grandifoxus longirostris* (86%), *Eogammarus schmidti* (81%), *Anisogammarus pugettensis* (78%) and *Westwoodilla sp.* (65%). All these species also had a high frequency of occurrence in collections from 2001 and 2002. The average amphipod biomass was 54.6 g/m^2 (9.8% of total biomass). More than 95% of amphipod biomass is accounted for by four species: *Pontoporeia affinis* (68.6% of total amphipod biomass), *Eogammarus schmidti* (19.3%), *Eohaustorius eous eous* (4.3%) and *Anisogammarus pugettensis* (3.2%). Amphipods have their highest quantitative abundance values at depths of less than 15 m. The sharpest decrease in the abundance of amphipods occurs in the range of 15-20 m (Table 7, Figs. 13 14 and 15). The proportion of amphipods is 72% of the total benthos biomass at depths of 8-10 m and 1% at depths greater than 20 m.

The nature of the spatial distribution of amphipod biomass in the Piltun Area shows similar trends in 2003 and 2002: the zone of high biomass is associated with the parts of the area nearest the shore, and the amphipod distribution is patchy (Fig. 16). In the figure for 2003 (Fig. 16A), the occurrence of amphipods is patchy as compared to the 2002 distribution. According to the materials from 2002, a spot with high biomass can be clearly charted only in the southern part of the area. In the 2003 chart, areas with high amphipod biomass are observed in the middle

and northern parts of the area. The differences are related to the fact that the studies in 2003 covered shallower depths (from 8 to 10 m) than in 2002 (from 11 to 15 m). According to the data of diving studies in the Piltun Area in 2001, the maximum amphipod biomass zone occurs at depths of 5 to 15 m; 2002 collections covered only the deepest part of this zone, from 11 to 15 m. The patchy amphipod distribution shows up clearly in the colony density distribution (Fig. 16B).

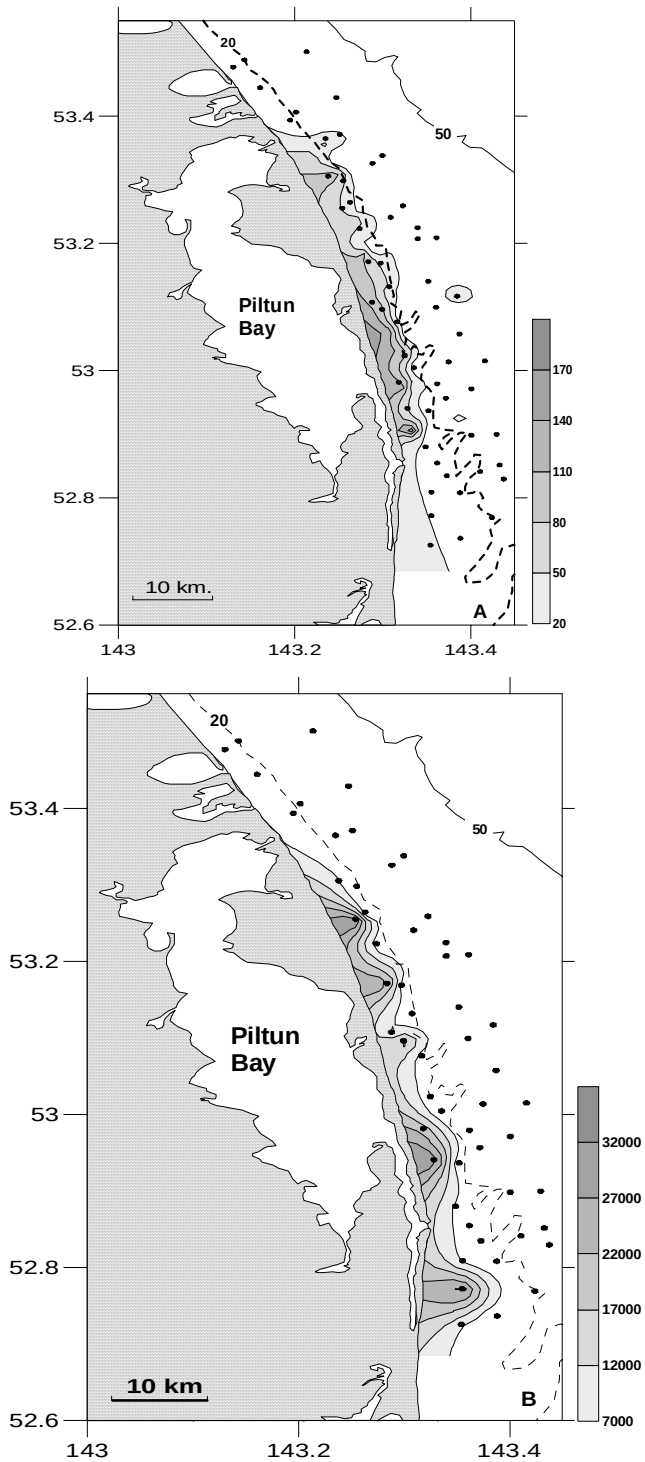

Figure 16. Distribution of biomass (A, g/m^2) and density (B, spec./m^2) of **amphipods** in the Piltun Area based on materials for 2003.

Cumaceans (*Cumacea*). Based on materials for 2001, the average biomass of cumaceans at depths of 5–30 m was 17.1±3.5 g/m^2 at the frequency of occurrence. The biomass of cumaceans increased with depth. A similar relationship could be traced in the materials for 2002. The biomass of cumaceans was 5.35 g/m^2 in the range of 11–15 m and increased to 48.9 g/m^2 at a depth of 30 m. The average biomass was 10.9±2.8 g/m^2. The maximum density of cumaceans of 24,800 to 37,600 spec./m^2 with a biomass of 84 to 113 g/m^2 was observed at depths of 30-32 m (Fadeev 2002, 2003).

Cumaceans have a high frequency of occurrence – 91% – in the 2003 collections. Four species of cumaceans were observed: *Lamprops affinis, Lamprops quadriplicata, Diastylopsis dawsoni* and *Diastylis bidentata.* The first three species were encountered in small numbers in a narrow depth range of 8 to 15 m. Only *Diastylis bidentata* is encountered at all depths, and it accounts for more than 97% of the cumacean biomass. The maximum abundance of this species at a depth of 25 m was 5200 spec./m^2 with a biomass of 44.9 g/m^2. The average biomass of cumaceans for the entire area was 2.1 g/m^2, which is substantially lower than the data for 2001 and 2002. Cumacean biomass was low at practically all depths and did not vary substantially (Table 7, Appendix 1 Fig. A1.6).

Bivalve mollusks (*Bivalvia*). Based on data for 2001, only three species had a frequency of occurrence greater than 25% in the area of Piltun Bay, and these species were dominant in regard to biomass: *Siliqua alta, Macoma lama* and *Megangulus luteus*. For the water area as a whole, the biomass of *Bivalvia* increases somewhat from 5 m to 10–15 m, with a subsequent decrease at depths greater than 20 m. The average biomass value for bivalve mollusks for the entire water area at depths of 11–30 m was 103.2±25.15 g/m^2. The average biomass of bivalve mollusks in the range of 11–30 m in 2002 was 40.36±8.81 g/m^2. Four species make up the basis of bivalve mollusk biomass: *Megangulus luteus* (frequency of occurrence P = 56%), *Macoma lama* (P = 45%), *Siliqua alta* (P = 31%) and *Mactromeris polynyma* (P = 1%). The spatial distribution of bivalve mollusks in the Piltun Area was similar in nature in 2001 and 2002. Areas of higher biomass had a patchy distribution and were associated with the southern, middle and northern parts of the area (Fadeev 2002, 2003).

In the materials for 2003, 30 species of bivalve mollusks were recorded (Appendix 4). Of these, five species had a frequency of occurrence higher than 25%: *Megangulus luteus* (frequency of occurrence P = 71%), *Macoma lama* (P = 35%), *Siliqua alta* (P = 32%), *Mysella kurilensis* (P = 28%) and *Mactromeris polynyma* (P = 27%). All these species had a high frequency of occurrence in 2002 as well. The average biomass of bivalve mollusks in the Piltun Area was

48.2±11.9 g/m^2, and 40.4±8.8 g/m^2 in 2002 (Table 7). The spatial distribution of bivalve mollusks for 2003 and 2002 has a distinct aggregated nature (Fig. 17).

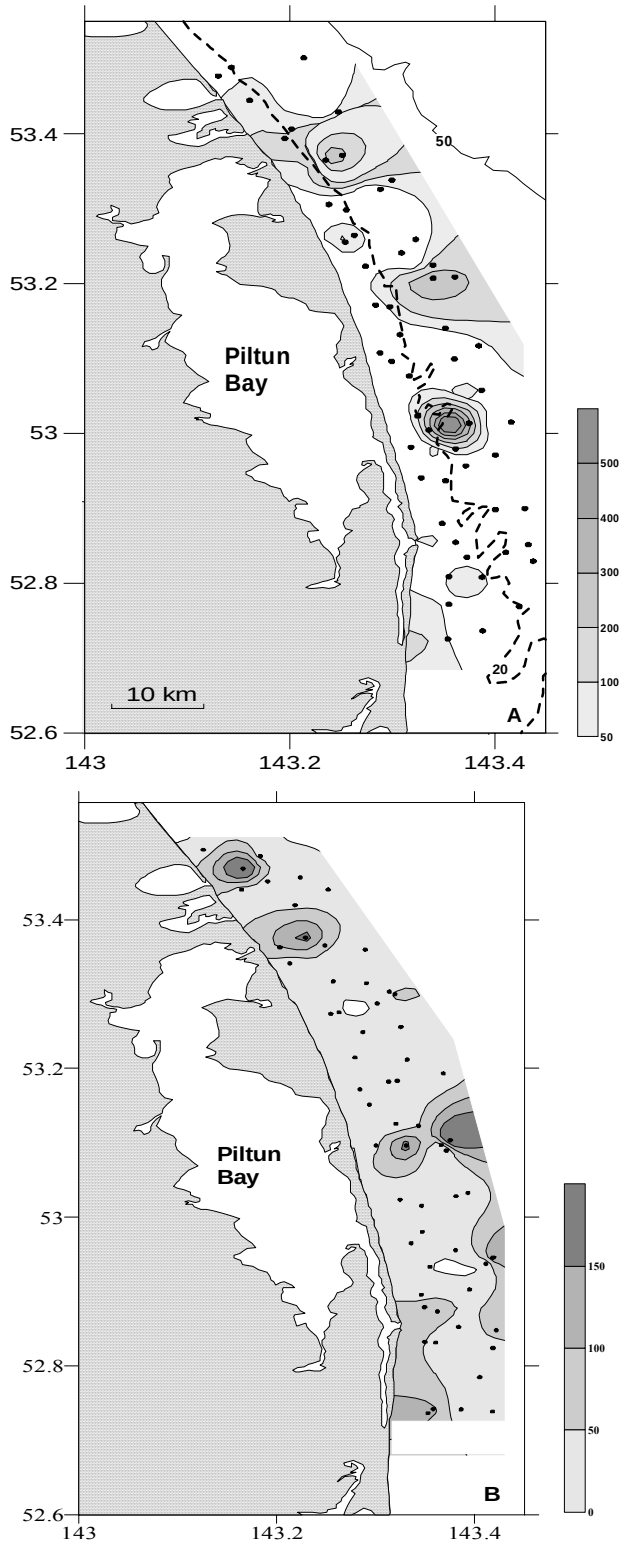

Figure 17. Distribution of biomass (g/m^2) of **bivalve mollusks** in 2003 (A) and 2002 (B) in the Piltun Area.

4.1.2. Size Composition of Mass Species of Amphipods

Analysis of data on the benthos composition at gray whale feeding sites obtained in the Piltun Area in 2002 indicated that amphipods have high quantitative abundance levels there (Fadeev 2003). Analysis of the size composition in the whale feeding areas makes it possible to assess the proportion of amphipods potentially suitable for the whale's diet. The threshold value is assumed to be 6 – 8 mm (Rice and Wolman 1973, Nerini 1984). In addition, the degree of replenishment of amphipod colonies with juveniles, the growth rates of individuals and, most important, the productive potential of the whale feeding grounds can be assessed based on the size composition.

A preliminary analysis was performed in 2001-2002 on the size composition of 10 mass species from the Piltun (seven species) and Offshore areas (three species): *Anonyx nugax pacificus, Pontoporeia affinis, Protomedeia fasciata, Grandifoxus longirostris, Anisogammarus pugettensi, Eogammarus schmidti, Eohaustorius eous eous, Ampelisca eschrichti, Photis reinchardi* and *Onissimus krassini.* It was noted that the presence of a significant proportion of juvenile individuals was characteristic of all species, which attested to the absence of any pronounced negative impact on the amphipod colonies. The proportion of individual specimens with a body length greater than 6 mm, i.e., individuals accessible for whale feeding, varied in the different species from 58 to 100%. The only species in whose sampling individuals with a body length smaller than 6 mm were prevalent (83%) was *Photis reinchardi*. This species has a high frequency of occurrence and abundance in the Offshore Area, in the zone of colonies of *Ampelisca eschrichti* (Fadeev 2002, 2003).

The list of 10 species in which the size composition was analyzed included species with a high frequency of occurrence in the areas. However, to assess the significance of a species as a food object, it is important that the species be not only frequently encountered (available) in the area but also abundant, i.e., that it have a sufficient colony density and biomass. In the Offshore Area, of the 35 amphipod species, those with the highest frequency of occurrence are *Ampelisca eschrichti, Photis reinchardi* and *Onissimus krassini*. Studies in 2002 and 2003 indicated that *Ampelisca* accounts for up to 96-100% of amphipod biomass at the benthos accumulation sites at which gray whales feed. It is expedient to monitor the size composition of this particular species in the Offshore Area.

Of the 43 amphipod species recorded in the Piltun Area, seven species have a high frequency of occurrence: *Anonyx nugax pacificus, Protomedeia fasciata, Pontoporeia affinis, Eogammarus schmidti, Eohaustorius eous eous, Grandifoxus longirostris* and *Anisogammarus*

pugettensis. Materials for 2003 and 2002 indicated that the first two species account for only a small part of the average amphipod biomass, while the other five species make up 95 to 100% of the biomass at stations where amphipods are dominant. The size composition of these species should be monitored in the Piltun Area.

Copious material for analysis of the size composition of amphipods was collected in 2003 at three stations, 1-3M, 2-3M and 1-4S, at depths of 10-14 m in the fine sand zone (Fig. 1). Stations 1-3M and 2-3M are 3 km apart, while station 1-4S is 11 km north of them. The amphipod biomass at the stations varied from 70 to 85 g/m^2. Of the 12 species recorded at the stations, three species (*Pontoporeia affinis, Eogammarus schmidti* and *Eohaustorius eous eous*) account for 95 to 99% of the amphipod colony density and 78 to 99% of the average biomass at the stations (Table 8). Histograms of the size composition of the dominant species of amphipods are presented in Table 9 and Fig. 18. The proportions of individuals that exceed the threshold size of 6 mm are 100% for *Eogammarus schmidti*, 86% for *Pontoporeia affinis*, and 48% for *Eohaustorius eous eous*.

Analysis of the histograms of the size composition of amphipod samplings makes it possible to analyze their age composition (Fig. 18). Three size groups can be distinguished quite clearly in the amphipod *Eogammarus schmidti:* with a modal value of 7 mm – age group 0+; with a mode of 14 mm – group 1+; and with a mode of 20 mm – group 2+. As in the 2002 sampling, two size groups can be distinguished by *Pontoporeia affinis*: with a modal values of 9 mm (age group 1+) and 4 mm (group 0+).

In the 2003 sampling of amphipod *Eohaustorius eous eous*, an indistinct size structure is observed, with a significant proportion of small individuals. Sampling for analysis of the size composition coincided with the time of the mass appearance of juveniles of this species. This observation is supported by the presence of an enormous number of juvenile amphipods on the surface of an Autonomous Underwater Acoustic Recorder (AUAR) that was brought up during this period after 10 days' exposure on the bottom (Photo 3). A bimodal distribution of sizes is observed in the 2002 sampling of individuals of this species, and the age groups 0+ and 1+ can be distinguished.

Table 8. Composition, Colony Density (A, spec./m^2) and Biomass (B, g/m^2) of Amphipods at Stations for Taking Materials for Analysis of the Size Composition

Species	Stations					
	2-3M		1-4S		1-3M	
	A, spec./m^2	B, g/m^2	A, spec./m^2	B, g/m^2	A, spec./m^2	B, g/m^2
Pontoporeia affinis	1025	**47.12**	1075	34.91	5860	**54.16**
Eogammarus schmidti	100	21.59	838	**47.97**	28	1.19
Eohaustorius eous eous	2573	11.9	3273	11.5	52	0.16
Grandifoxus longirostris	66	0.57	22	0.34	23	10.32
Anisogammarus pugettensis	65	0.11	2	0.1	47	1.16
Boeckosimus krassini	7	0.08	5	0.18	0	0
Boeckosimus derjugini	3	0.08	2	0.02	0	0
Grandifoxus robustus	13	0.05	0	0	0	0
Westwoodilla sp.	13	0.02	17	0.07	7	3.93
Synchelidium gurjanovae	8	0.01	10	0.01	0	0
Bathymedon subcarinatus	0	0	2	0.01	0	0
Atylus collingi	0	0	0	0	5	0.01
Orchomene gurjanovae	0	0	0	0	1	0.01
Total	3873	81.53	5246	95.11	6023	70.94

Table 9. Statistical Characteristics of the Size Composition of Mass Species of Amphipods

Parameter	***Pontoporeia affinis***			***Eogammarus schmidti***		***Eohaustorius eous eous***	
	2001	2002	2003	2002	2003	2002	2003
Average, mm	9.21	10.68	8.69	17.08	14.41	7.36	5.1
Standard deviation	0.75	0.24	0.06	0.74	0.13	0.11	0.07
Min	3.1	3	1.7	5.8	2.6	2.8	1.9
Max	19.4	17.5	16.8	29	29.2	14.3	9.3
N, spec.	220	1035	2052	195	754	736	522

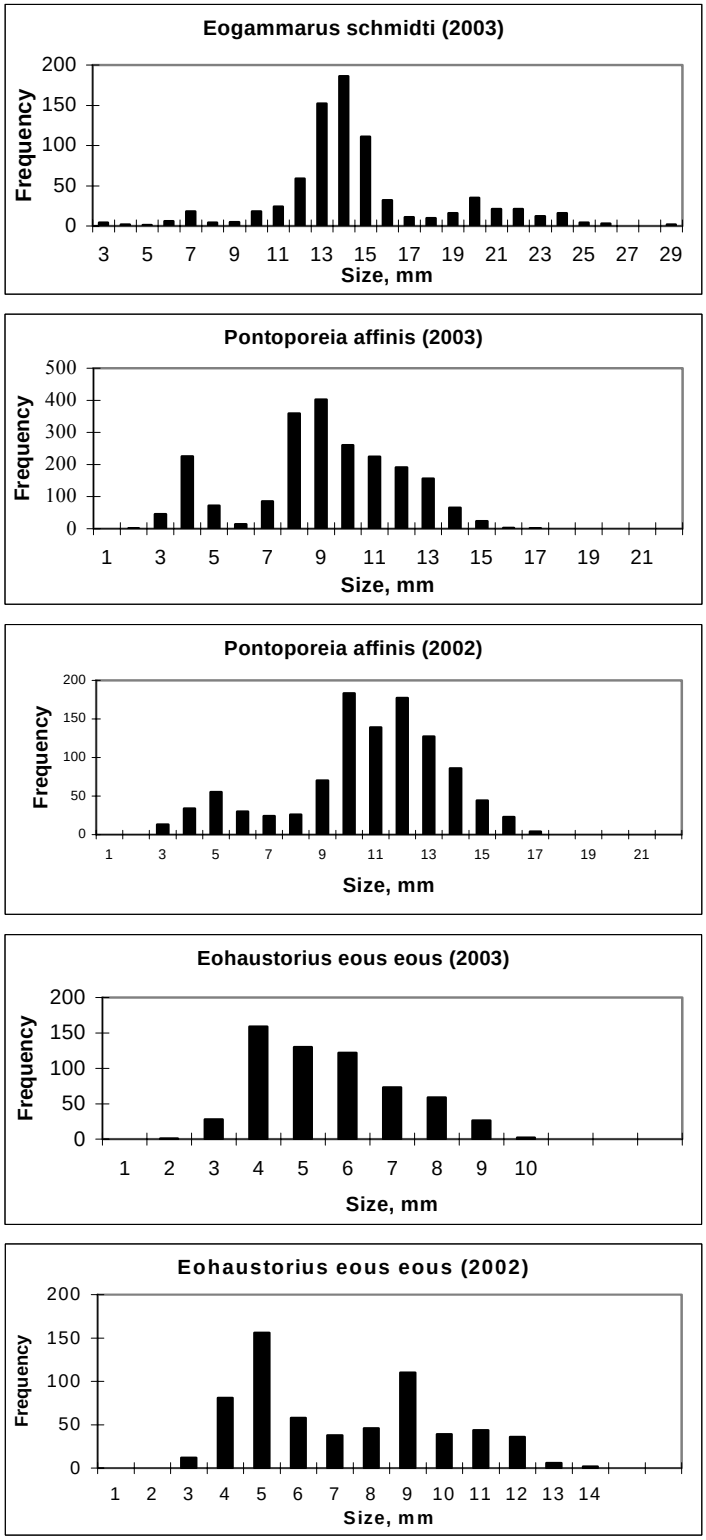

Figure 18. Histograms of the body length (mm) distribution for mass species of amphipods.

Photo 3. Sonobuoy covered with amphipod juveniles (top) and a piece of the buoy surface with amphipods (bottom).

4.1.3. Composition and Distribution of Benthos Complexes According to 2003 and 2002 Data

Cluster analysis was used to discover patterns in the benthos distribution – the 113 stations (2002-2003) were grouped according to similarity of the composition of benthos taxonomic groups. The classification results are presented in a dendrogram (Fig. 20). The groups of stations with the greatest similarity within the groups in regard to benthos complexes are not, strictly speaking, biocoenotic units. Based on further details, benthic complexes (assemblages) are divided into a number of units which are smaller but have greater similarity within groups – benthic communities. Fig. 19 shows the distribution of stations related to each complex in the Piltun Area. The benthos complexes differ in both the composition and the abundance of the taxonomic groups (Table 10).

Table 10. Composition of Benthos Complexes of the Piltun Area

Group	Complex *Amphipoda*		Complex *Bivalvia*		Complex *Echinoidea*	
	A, spec./m^2	B, g/m^2	A, spec./m^2	B, g/m^2	A, spec./m^2	B, g/m^2
Amphipoda	7376	**132.26**	721	18.49	225	19.8
Bivalvia	51	15.23	518	**171.2**	61	24.18
Cumacea	117	1.98	59	0.37	2439	18.14
Decapoda	0	0	4	4.43	3	4.16
Echinoidea	0	0.03	17	58.48	141	**824.9**
Gastropoda	2	0.37	6	4.33	2	13.39
Isopoda	456	29.65	542	20.48	19	17.12
Pisces	2	3.04	1	12.5	2	6.23
Polychaeta	58	1.43	144	27.71	79	28.38
Total	8062	185.71	2051	327.59	2981	963.43

Amphipoda complex includes 36 stations at depths of 8 to 15 m (average depth 11.6 m) in the fine sand zone. The complex is distributed in a belt along the shore in the Piltun Area (Fig. 18). The average biomass of the complex (185.71 g/m^2) is made up primarily of amphipods – 71%; isopods – 16%; and bivalve mollusks – 8% (Photo 4). The complex includes 27 amphipod species with a total biomass of 132.3±11.5 g/m^2 at a colony density of 8060±1740 spec./m^2. Four species have the greatest quantitative abundance: *Pontoporeia affinis, Eogammarus schmidti, Eohaustorius eous eous* and *Anisogammarus pugettensis,* which account for 95% of the average

biomass and colony density of amphipods in the complex. This group of species, in turn, is dominated by *Pontoporeia affinis,* which makes up 74% of biomass and 83% of colony density.

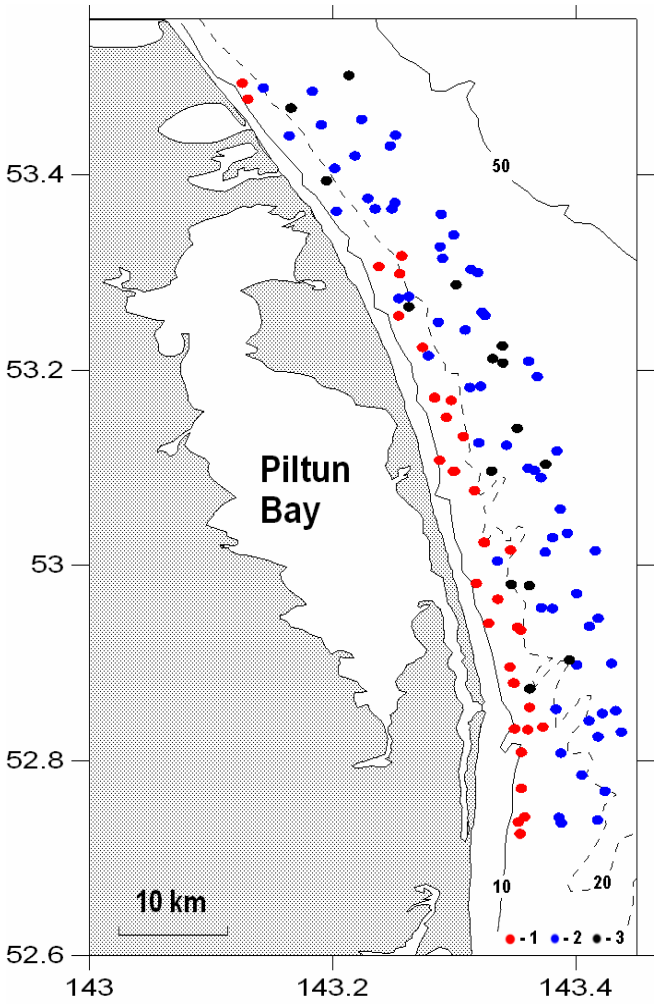

Figure 19. Distribution of complexes in the Piltun Area based on data of 2002-2003.

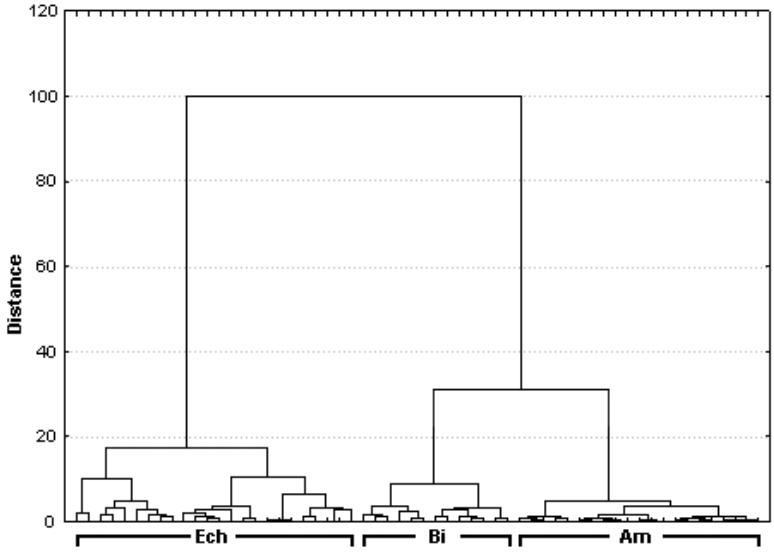

Figure 20. Dendrogram of the similarity of stations (bottom) and diagram of the distribution of complexes (top) in the Piltun Area based on materials of 2002-2003.
In dendrogram: Am – amphipod complex; Bi – bivalve mollusk complex; Ech – flat sea urchin complex. *Complex designations in diagram*: 1 – amphipods; 2 – flat sea urchins; 3 – bivalve mollusks.

Photo 4. Bottom grab sample (0.2 m^2) from complex *Amphipoda.*

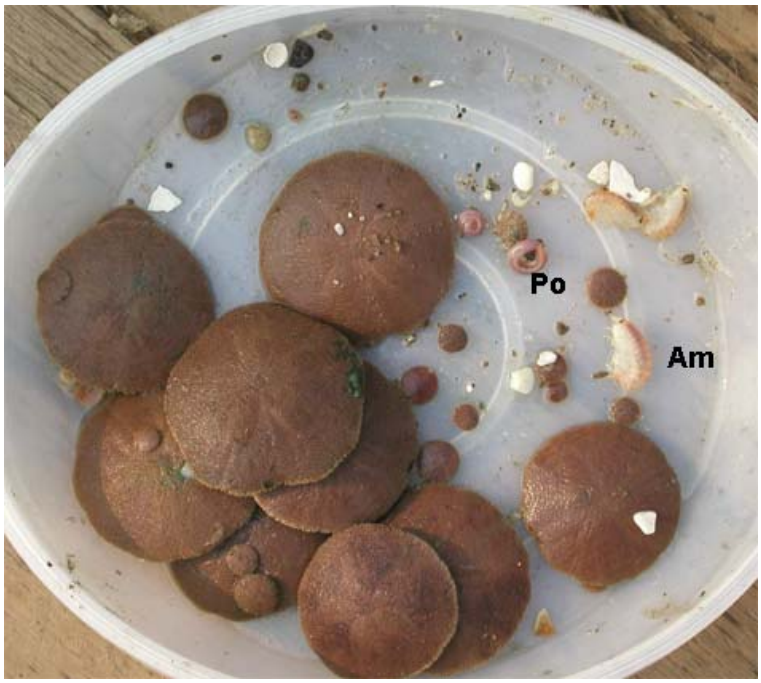

Photo 5. Bottom grab sample (0.2 m^2) from flat sea urchin complex.
Am – amphipods *Anonyx nugax*,
Po – polychaetes *Ophelia limacina.*

Second in significance in the complex are isopods, represented by two species: *Synidotea cinerea* and *Saduria entomon*. The dominant species, *S. cinerea*, has a frequency of occurrence in the complex of 95%, and it accounts for 86% of the total isopod biomass. The complex includes 10 species of mollusks, of which five species have a frequency of occurrence greater than 50%: *Megangulus luteus, Siliqua alta, Tridonta borealis, Liocyma fluctuosum* and *Macoma lama.* These species account for more than 87% of the biomass of bivalve mollusks (15.2 g/m^2).

Based on the data of diving studies in 2001, bottom areas with dominance of amphipods and isopods with a similar composition are widespread in the coastal zone of the Piltun Area at depths of 5-15 (17) m (Fadeev 2002). Hence, the complex structure characteristic for depths up to 8 (minimum collection depth) to 15 m is described based on bottom grab collections of 2003. The accumulation of data obtained at shallower depths naturally results in refinement of the complex composition and structure. Areas with higher forage benthos biomass described based on materials of 2002 (Section 4.1.3: Fadeev 2003) in the range from 11 (minimum collection depth in 2002) to 15 m have a composition similar to the complex described. The amphipod *Pontoporeia affinis* had the greatest abundance in the coastal amphipod complex in 2001-2003.

Pontoporeia affinis **(=** *Monoporeia affinis***)** is a saltwater Pan-Arctic circumpolar species represented by relic populations in the boreal zone. It inhabits the northern arctic seas and lakes

of Northern Europe and North America. In the Baltic Sea, it lives at depths of 0.5-300 m with salinity of 1.5-18‰ and temperatures up to 12.8 ºC (Yarvekyulg 1979). In the Piltun Area, the species is encountered both in freshened Piltun lagoon areas and in offshore areas with normal salinity. With respect to feeding type, it is a burrowing deposit feeder. In digging up the top layer of the bottom and stirring up the bottom sediment during feeding, *P. affinis* has a significant impact on bivalve mollusk juveniles (Segerstrale 1973), meiobenthic animals (Olafsson and Elmgren 1991) and even zooplankton (Albertsson and Leonardsson 2001). It breeds in winter, and juveniles emerge from the hatching pouch in spring; individuals die after the first breeding (Yarvekyulg 1979). In cold waters, the species reaches sexual maturity in the second year of life, while in warmer waters it has a one-year life cycle (Segerstrale 1967). In the Baltic Sea, *P. affinis* is among the highly productive benthic species (Andersin et al. 1984).

In samplings of individuals of this species in 2002 (n = 1035) and 2003 (n =2052), age groups 0+ and 1+ can be clearly interpreted; i.e., this species has a one-year life cycle in the Piltun Area.

Therefore, one can assume that high abundance figures for the amphipod complex in the Piltun Area are conditioned by the highly eurybiontic nature and short life cycle of the amphipod *Pontoporeia affinis*.

Bivalve complex includes 15 stations at depths of 9 to 27 m (18.4 m, on the average) on fine sands and mixed gravel and sand bottoms. In contrast to the amphipod complex, it has a distinct spotty distribution in the area (Fig. 17). The composition of the complex includes 16 bivalve mollusk species with a biomass of 171.2± 66.8 g/m^2 at an average complex biomass of 327.59 g/m^2. Seven species have the highest frequency of occurrence: *Megangulus luteus, Astarte arctica, Macoma lama, Tridonta borealis, Siliqua alta, Mysella kurilensis, Liocyma fluctuosum* and *Mactromeris polynyma*, which account for more than 95% of the total biomass of the complex. The bivalve mollusk complex is not homogeneous – in shallow areas *Megangulus luteus* is dominant in the complex (P = 35 %, B = 20.3 g/m^2); in deeper water (deeper than 20-25 m), *Astarte arctica* is dominant (P = 32.3%, B = 25.6 g/m^2).

Flat sea urchin *Echinarachnius parma* complex has the largest number of stations – 62 – at depths of 13 to 32 m (average depth 23.4 m). The complex occupies areas of the bottom in the Piltun Area at depths greater than 20-22 m (Fig. 19; Appendix 1, Fig. A1.5). The average biomass of the complex is 963.43 g/m^2, and the flat sea urchins account for more than 85.6%. The highest biomass of *E. parma* of 1300 to 1900 g/m^2 was observed at depths of 23-25 m. The flat sea urchin complex was described previously in the Piltun Area based on materials from

2001 (Fadeev 2002). According to materials from 2003, it was observed in the Intermediate Area (sections between the Piltun and Offshore areas) and at several stations of the Offshore Area (Fadeev 2003). Distinct dominance of flat sea urchins in biomass and an extremely low proportion of food objects are characteristics of the *E. parma* complex in all areas.

Hence, in resuming the analysis of the distribution of macrobenthic complexes, we note that two complexes occupy the main area in the Piltun Area:

1. the shallow-water coastal amphipod complex, with high proportions of food components; and
2. the deeper-water sea urchin complex, with an extremely low proportion of food objects in its biomass.

The provisional boundary between complexes is at depths of about 20 m (Fig. 19).

4.2. Offshore Area

4.2.1. Quantitative Abundance and Distribution of Benthos Based on Data for 2003 and 2002

There were 36 stations (108 bottom grab samples) at depths of 18 to 54 m (average depth 35.9±1.7 m, n=36; in 2003 - 37±1.6 m, n=36) in the Offshore Area in 2003. A diagram of the locations and depths of the stations in the Offshore Area is presented in Fig. 21. A combined diagram of the stations in 2002 and 2003 is given in Appendix 1 (Fig. A1.2).

There are sandy bottoms in most of the Offshore Area: well-sorted fine sand at 33 stations, and sands of varying grain size mixed with gravel and pebbles at three stations (Sections 2.2-2.3). The aleurite-pelite fraction makes up more than 20% of dry sediment weight at a number of stations (not more than 8% in 2002).

There were 17 benthos taxonomic groups recorded in the collections; they differ substantially in their frequency of occurrence at the stations (Table 11).

Table 11. Frequency of Occurrence of Benthos Taxonomic Groups in the Offshore Area.

Frequency of Occurrence (P, %) of Taxonomic Groups, n=36							
P > 50%		P = 25-50%		P = 10-25%		P < 10%	
Group	P,%	Group	P,%	Group	P,%	Group	P,%
Amphipoda	100	*Gastropoda*	36.1	*Nemertinea*	11.1	*Caprellida*	6.9
Cumacea	83.3	*Decapoda*	33.3	*Holoturoidea*	12.3	*Bryozoa*	6.7
Bivalvia	94.4	*Echinoidea*	27.8	*Hydroidea*	12.5	*Isopoda*	8.6
Actinia	72.2					*Ophiuroidea*	5.5
Polychaeta	56.9					*Ascidiacea*	5.5

Groups with a frequency of occurrence greater than 50% form the basis of the benthos biomass throughout the water area of the Offshore Area, as in 2002: amphipods, cumaceans, bivalve mollusks, marine worms and sea anemones. There are also groups with a lower frequency of occurrence throughout the area which nevertheless form local sections with very high biomass – flat sea urchins *E. parma* (P = 28%). For the Offshore Area as a whole, these taxonomic groups account for more than 95% of the average total benthos biomass – 630.1±64.3 g/m^2 (n=36). Figures for the quantitative abundance of benthos for the Offshore Area are given in Table 12.

Analysis of the total average benthos biomass and the biomass of individual groups for collections of 2003 and 2002 indicates that significant differences in the average values are observed in a number of cases. The average total benthos biomass was reliably lower in 2003 than in 2002 (630.1±64.3 g/m^2 and 1052.8±104.8 g/m^2, respectively; t-test, $t = 3.27$, $df = 70$, $p < 0.05$). In this process, significant differences in average biomass between 2003 and 2002 are observed only for polychaetes: 15.5±7.8 g/m^2 and 40.1±10.7 g/m^2 ($t = 2.87$, $df = 70$, $p < 0.05$). The biomass of the other groups (amphipods, bivalve mollusks, anemones, cumaceans) was lower in 2003 than in 2002, but the differences are not statistically significant. The biomass of amphipods – the most important component in the diet of whales in the Offshore Area – was 343.8±52.8 g/m^2 and 437.1±56.2 g/m^2 in 2003 and 2002, respectively. Year-to-year variations in average amphipod biomass are not significant: $t = 1.17$, $df = 70$, $p = 0.24 > 0.05$.

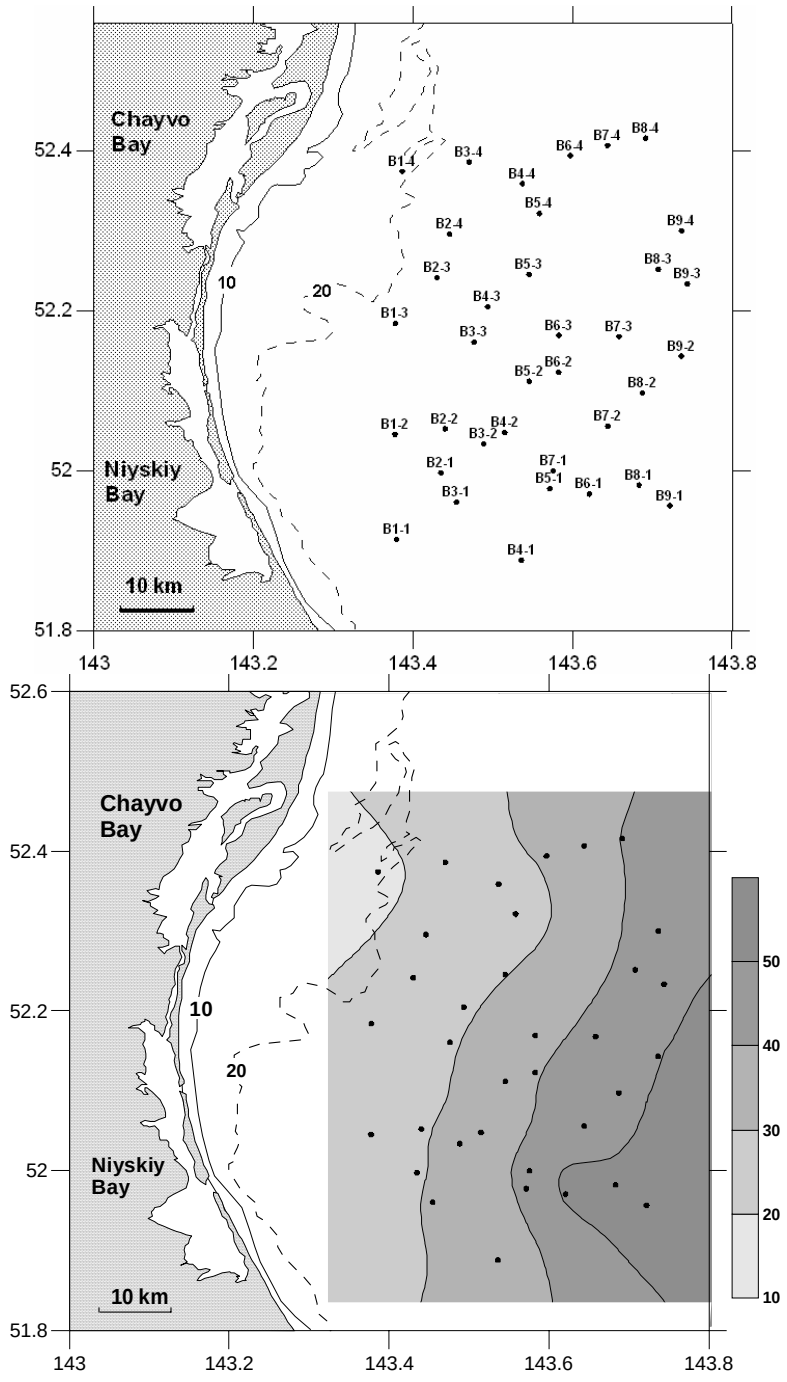

Figure 21. Diagram of the locations of stations in the Offshore Area (top) and distribution of depths (m) of individual stations (bottom) in 2003.

Table 12. Distribution of Macrobenthos Biomass (g/m^2) in the Offshore Area Based on Materials of Field Studies in 2003 (36 Stations).

Parameter	Taxonomic Group						Average Biomass for Area
	Amphipoda	*Actinia*	*Bivalvia*	*Echinoidea*	*Cumacea*	*Polychaeta*	
Average biomass	**343.85**	83.56	73.74	50.89	48.96	15.55	630.1
Standard deviation	52.76	17.28	12.8	14.41	24.74	7.84	64.3
Proportion in average biomass, %	54.6	13.3	11.7	8.1	7.8	2.5	100%
Minimum	2.73	0	0	0	0	0	63.61
Maximum	1237.04	452.97	296.23	457.03	838.1	282.5	1551.4
Frequency of occurrence (P, %)	100	59.7	93.1	26.4	97.2	90.3	

The spatial distribution of benthos biomass was similar in nature in 2003 and 2002. Amphipod biomass increases in moving away from the shore toward the deep-water areas. A similar trend was observed in 2002. The other groups (sea anemones, bivalve mollusks, cumaceans) that form the basis of the biomass have a distinctly patchy distribution (Figs. 24-27; Appendix 1: Figs. A1.9-A1.12).

As in 2002, accumulations of bivalve mollusks, sea anemones, cumaceans and flat sea urchins have the most aggregated distribution. Areas of higher biomass of these groups are on the edge of the amphipod mass development zone (Figs. A1.9 and A1.12). The nature of the distribution of total benthic colony density is determined by specific features of the distribution of cumaceans and amphipods. The macrobenthos high-density zone coincides with cumacean colonies in the eastern part of the area and with areas of amphipod mass development in the western part (Fig. 23A).

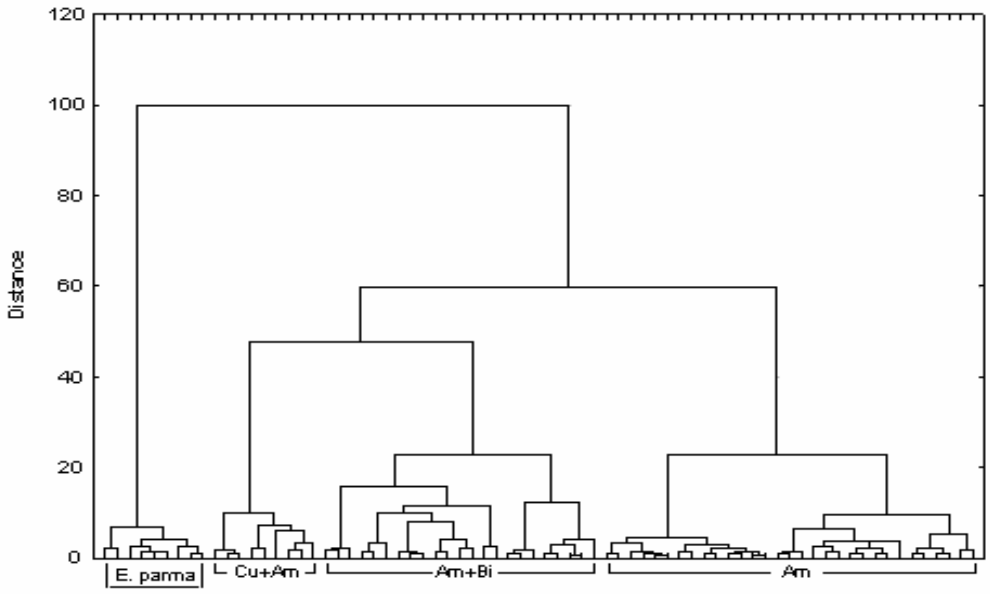

Figure 22. Dendrogram of the similarity of stations of the Offshore Area in 2003 and 2002 in regard to macrobenthos structure. For description of complexes, see Section 3.2.2. and Table 13.

Table 13. Quantitative Characteristics of Macrobenthos Complexes of the Offshore Area Based on Materials from 2003 and 2002 (72 Stations).

Parameter	Taxonomic Group					Average biomass
	Amphipoda	*Actinia*	*Bivalvia*	*Echinoidea*	*Cumacea*	
I. Complex *Echinarachnius parma* (E. parma)						
Average biomass	78.93	37.32	34.34	**572.01**	54.73	777.32
Standard deviation	28.41	22.42	10.85	113.33	30.62	135.13
Proportion in average biomass, %	10.2	4.8	4.4	73.6	7	100%
II. Complex *Diastylis bidentata* + *Amphipoda* (Cu+Am)						
Average biomass	**152.41**	16.17	26.2	37.61	**380.34**	612.74
Standard deviation	57.5	16.17	13.45	24.21	47.96	92.8
Proportion in average biomass, %	24.9	2.6	4.3	6.1	62.1	100%
III. Complex *Ampelisca eschrichti* (Am)						
Average biomass	**733.38**	197.66	154.52	6.26	30.91	1122.74
Standard deviation	42.56	35.21	32.31	4.09	5.86	68.9
Proportion in average biomass, %	65.3	17.6	13.8	0.6	2.8	100%
IV. Complex *Ampelisca eschrichti* + *Bivalvia* + *Actinia* (Am+Bi+Ac)						
Average biomass	**172.2**	**120.25**	**166.97**	0	56.5	515.92
Standard deviation	38.02	59.27	30.15	0	13.64	60.5
Proportion in average biomass, %	33.4	23.3	32.4	0	11	100%

4.2.2. Composition and Distribution of Benthos Complexes in the Offshore Area Based on Materials from 2003 and 2002

Based on materials from 2002 (36 stations), three macrobenthos complexes were distinguished in the Offshore Area: the flat sea urchin complex, the cumacean and amphipod complex and the ampeliscid amphipod complex. The latter occupies the largest part of the water area and is of great importance as an active feeding ground for gray whales (Fadeev 2003).

All the stations of 2002 and 2003 (72 stations) were grouped according to similarity of the quantitative relationships among benthos taxonomic groups. A similar approach was used in classifying the stations of the Piltun Area (Section 4.1.3). The classification results are illustrated with a dendrogram (Fig. 22). The distribution of quantitative abundance figures for the main benthos groups which are dominant in the complexes is shown in Figs. 23-27. Based on materials for 2002-2003, four benthos complexes are distinguished in the Offshore Area (Table 13):

I. Complex with dominance of flat sea urchins *Echinarachnius parma*. The average depth was 30.1±2.8 m (10 stations at depths of 18-43 m). Flat sea urchins are prevalent at all stations, with an average biomass of 570 g/m^2 (more than 73% of the total biomass of the complex).

This complex was described in the Piltun Area at depths greater than 20 m based on data for 2001-2003 (Photo 5). Based on materials from 2002-2003, in the Offshore Area it occupies local sections in the northern part of the water area (Fig. A1.9).

According to published data (Averintsev et al. 1979), along northeast Sakhalin Island at depths of 15-120 m a gigantic subarctic-latitude association of the flat sea urchin *Echinarachnius parma* exists, which occupies an area of about 13,000 km^2 off Eastern Sakhalin, i.e., about 40% of the shelf area. The *E. parma* community is associated with shallow sandy bottoms and silted sands, where bottom currents with sufficiently high speeds are present (Koblikov 1983). As the current speeds decreases southward along the eastern Sakhalin shelf, and bottom silting increases, the sea urchin is replaced by other species. Mobile seston-feeders (flat sea urchin, etc.) settle primarily on sands and coarse silts, with an organic matter content of 0.5-1.0% and a concentration of suspended matter in the seabed water of about 20 mg/l (Kuznetsov 1964). According to observations conducted in 1995-1996, the content of suspended matter in the water column varied from 0.93 to 11.8 mg/l, with suspended matter of biological origin prevalent (CSA 1996, 1997). Significant bottom areas occupied by the *E. parma* community have been discovered on the western Kamchatka shelf (Neyman 1988), and, as researchers note, the

northern boundary of the *E. parma* area has advanced more than 20 miles to the north. They connect the cause of such changes with an indirect anthropogenic effect – overharvesting of the Kamchatka crab and flounder (which feed on the urchins), which has resulted in disruption of the balance in the "predator-prey" system.

The growth of the flat urchin zone and its penetration into shallower waters in the water area north of the Piltun Area have been demonstrated in the analysis of materials from 1992 and 2001 (Fadeev 2002).

II. Complex with prevalence of cumaceans *Diastylis bidentata* and amphipods *Ampelisca eschrichti*. The average depth is 29.6±0.7 m (9 stations at depths of 27-31 m). The average total biomass of the complex is 612.7±92.8 g/m^2, and the dominant species account for more than 85% of the biomass (cumaceans – 62%; and amphipods – 23%). The complex occurs in patches at depths of 27 to 31 m in the western part of the area, on fine-grained and mixed sands. Amphipod *A. eschrichti* is a subdominant species with biomass of 151 g/m^2.

The distribution of cumaceans was considered in describing the Piltun Area (section 4.1.1), also based on data from 2001 (Fadeev 2002). Based on materials from 2002, the relationship between the colony density of cumaceans *D. bidentata* and amphipods *A. eschrichti* in the Offshore Area was examined. The amphipod colony density decreased, while the cumacean colony density increased, as the depth increased (Fadeev 2003). A similar trend is observed in the 2003 collections (Figs. A1.10 and A1.11). Ampeliscid amphipods and cumaceans are seston-feeders and filter-feeders; i.e., both species obtain nutrition by filtering the seabed water. In the areas of greatest abundance, their density reaches enormous values: cumaceans, up to 87,000 spec./m^2, and amphipods, more than 31,000 spec./m^2. It could be expected that competition for food supplies would result in a spatial separation between accumulations of amphipod *A. eschrichti* and cumacean *D. bidentata*.

Analysis of benthos at gray whale feeding sites in the Offshore Area based on materials from 2002 indicated that the whales fed in areas where this complex was dominant in a number of cases (Fadeev 2003). However, the question of the possibility of gray whales' using cumaceans for their diet remains unsettled. It is known that there is a threshold amphipod body size (6-8 mm, according to: Rice and Wolman 1973, Nerini 1984), below which they cannot be used for food. If this principle is valid for other crustaceans as well, it should be noted that the cumaceans in collections from the Offshore Area are significantly smaller. The relationship between the sizes of cumaceans and amphipods can be judged based on the bottom grab sample fragment in Photo 6.

At the same time, quite high ampeliscid biomass has been observed in this complex (more than 150 g/m^2, based on data for 2002-2003) and it is ampeliscids that gray whales forage on in the areas of this complex.

III. Complex with prevalence of amphipod *Ampelisca eschrichti*. The average depth is 44.5±1.5 m (36 stations in the range of 30-60 m). The complex occupies the eastern part of the Offshore Area. Average biomass is 1122±68 g/m^2, and biomass of the dominant group of amphipods is more than 730 g/m^2 (65% of total biomass). The complex includes 35 species, of which 14 species are found only in the Offshore Area. One species – *A. eschrichti* – is distinctly dominant in regard to frequency of occurrence, colony density and biomass. Its biomass makes up 95-100% of the total amphipod biomass at certain individual stations. The maximum ampeliscid biomass had similar values in 2002 and 2003: 1312 and 1237 g/m^2, respectively, at 100% frequency of occurrence in the collections.

Materials for 2002 and 2003 from the Offshore Area (Table 13) allow a conclusion concerning high values for quantitative abundance of *A. eschrichti*. The ampeliscid colony density and biomass are comparable there and in certain cases even exceed the values in benthos of other highly productive areas of the Northern Pacific (Kuznetsov 1964, Koblikov 1983, Makarov 1937) and eastern gray whale feeding grounds (Stoker 1981; Nerini and Oliver 1983; Oliver et al. 1983; Dunham and Duffus 2001, 2002). In contrast to the dominant species in the amphipod complex of the Piltun Area, the ampeliscids live tubes attached to the bottom in areas with significant bottom currents (Mills 1967, Wildish and Kristmans 1997).

The size composition of ampeliscids was analyzed based on materials from 2003 and 2001-2002. The average body length was 11.38±0.43 mm (n = 210) in 2001 and 13.78±0.31 mm (n = 2015) in 2002. More than 90% of the individual specimens had a body size larger than 6 mm, which attests to the suitability of ampeliscid colonies in the Offshore Area for gray whale feeding (Fadeev 2003). The average body length in 2003 was 14.1±0.26 mm (n = 592). The breakdown of body sizes was similar in 2001-2003 (Fig. A1.8). Nevertheless, it is impossible to distinguish age groups clearly. The difficulty may be related to the prolonged breeding season of this species.

Based on materials for 2002 (36 stations), two local variations (groupings) were distinguished within the ampeliscid complex: ampeliscids + bivalve mollusks, and ampeliscids + sea anemones. Common to these groupings is high quantitative abundance of ampeliscids, sea anemones and bivalve mollusks. Joint analysis of the materials for 2002 and 2003 (72 stations) indicated that the groupings have great similarity. Sea anemones and bivalve mollusks were

encountered together at a considerable number of the stations. This makes it possible to combine the groupings into a separate benthos complex.

IV. Complex with prevalence of amphipod *A. eschrichti*, bivalve mollusks and sea anemones. Photographs 7 and 8 show fragments of two bottom grab samples taken at the same station. Sea anemones and ampeliscids are prevalent in one same, and bivalve mollusks and ampeliscids are prevalent in the other. Of the 14 stations classified in this complex, sea anemones, bivalve mollusks and amphipods were encountered together at 10 stations.

The average depth is 31.1±2.4 m (14 stations in a range of 23-45 m). The complex occurs in patches on the periphery of the ampeliscid complex. The average biomass of the complex is 516 g/m^2. Ampeliscids, bivalve mollusks and sea anemones account for about 90% of the biomass of the complex. Within the composition of the complex, 20 species of bivalve mollusks were recorded. Two species have the highest frequency of occurrence: *Serripes groenlandicus* (P = 52%) and *Liocyma fluctuosum* (41%).

The dominant species in regard to biomass in the benthos complexes – amphipods *Ampelisca eschrichti* and bivalve mollusks *S. groenlandicus* and *L. Fluctuosum* – are classified according to feeding type as seston-feeders and filter-feeders of the seabed water and are associated with hydrodynamically active sections of the shelf. A high microplankton concentration in the seabed water and the presence of steady bottom currents that facilitate the transfer of microplankton are necessary conditions for their existence. Sea anemones, which are predators according to feeding type, are also involved with the transfer of food particles by bottom currents. Active bottom hydrodynamics promotes the transfer of larvae from existing seston-feeder colonies to new areas and results in a patchy distribution (A1.12).

Patchiness in the spatial distribution of benthos in the Offshore Area can be traced clearly in the diagrams of colony density and biomass of the main taxonomic groups (Figs. 23-26; Figs. A1.9-A1.12).

The *Ascidia vegae* complex was observed at three stations in the northeastern part of the Offshore Area in 2002 and 2003 (Photo 9). The stations classified in this complex are located on bottom rises with gravel-sand soil at depths less than 30 m. The ascidian complex was observed in 2002 in the area between the Piltun and Offshore areas (Fadeev 2003). Despite the high total biomass of the complex, the proportion of forage groups in it is extremely small.

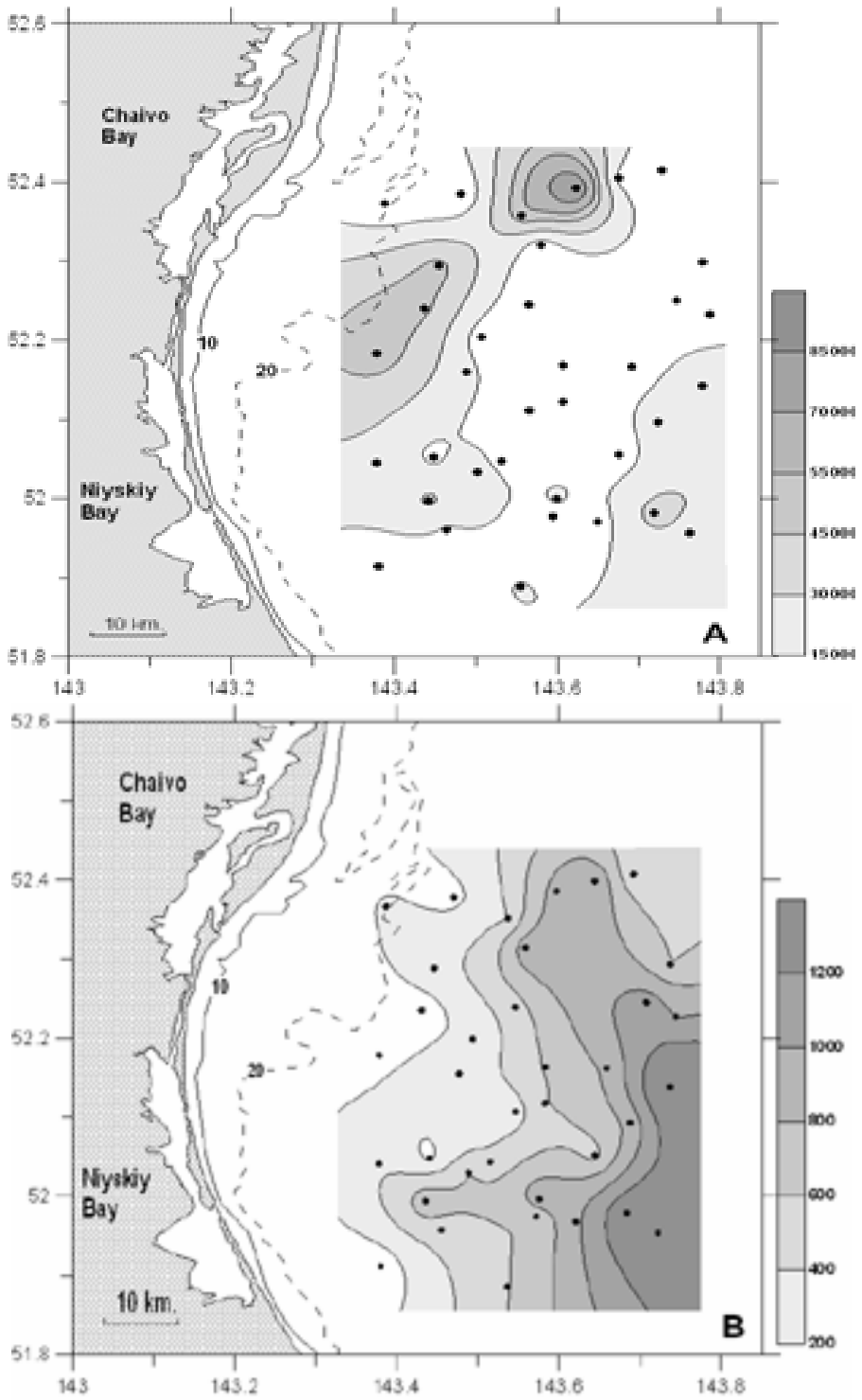

Figure 23. Distribution of **macrobenthos** overall colony density (A, spec./m2) and biomass (B, g/m2) in the Offshore Area in 2003.

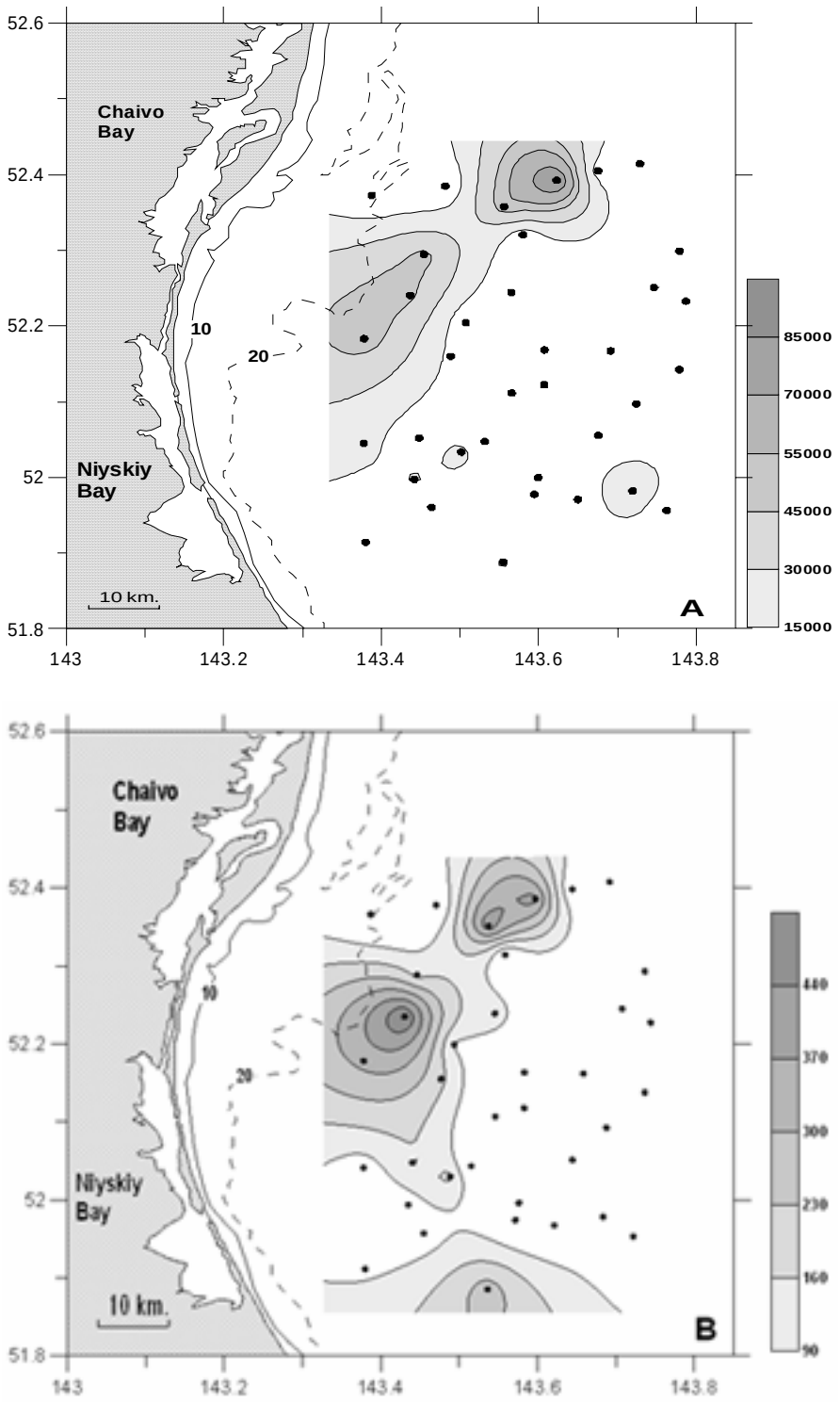

Figure 24. Distribution of **cumacean** colony density (A, spec./m^2) and biomass (B, g/m^2) in the Offshore Area in 2003.

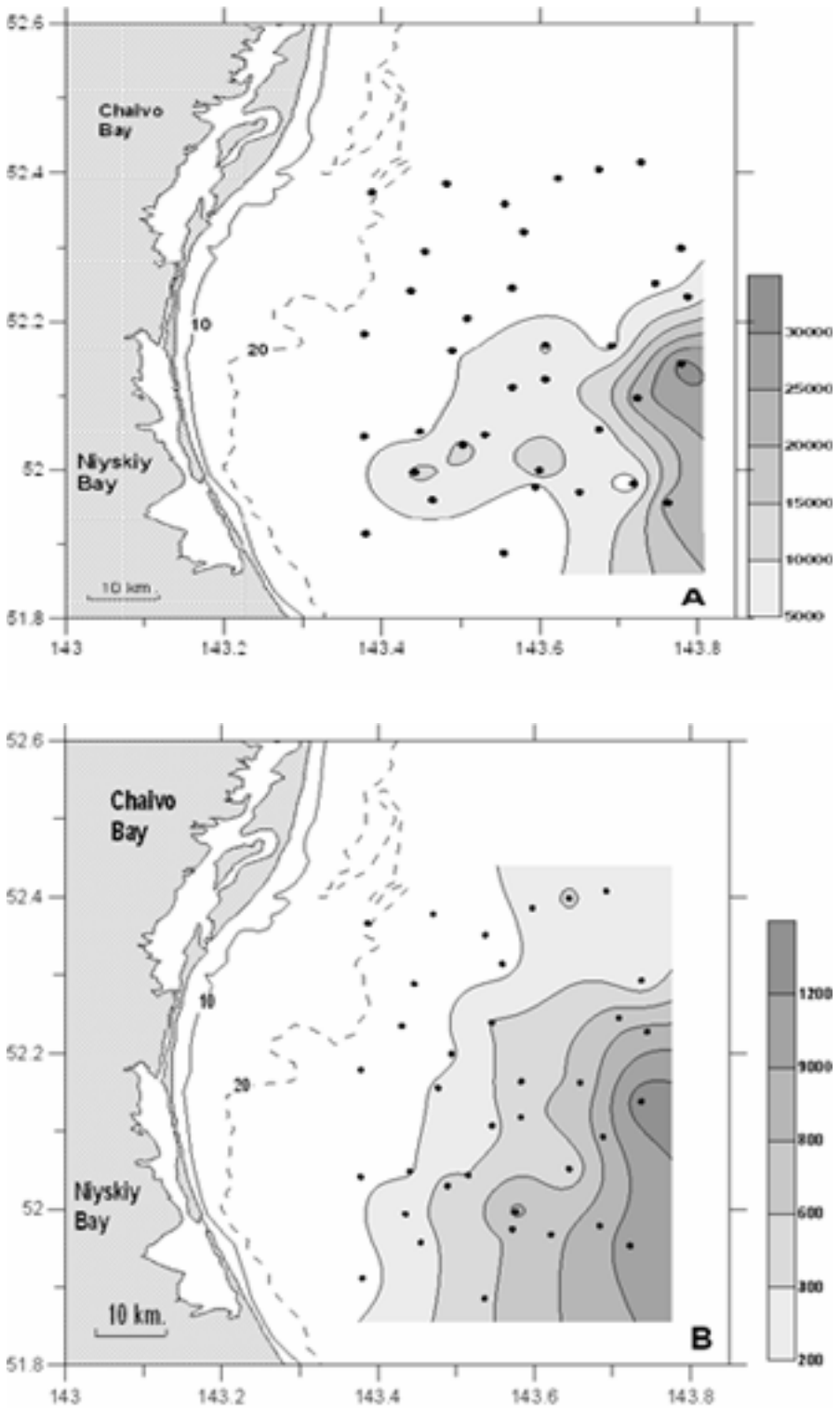

Figure 25. Distribution of **amphipod** colony density (A, spec./m^2) and biomass (B, g/m^2) in the Offshore Area in 2003.

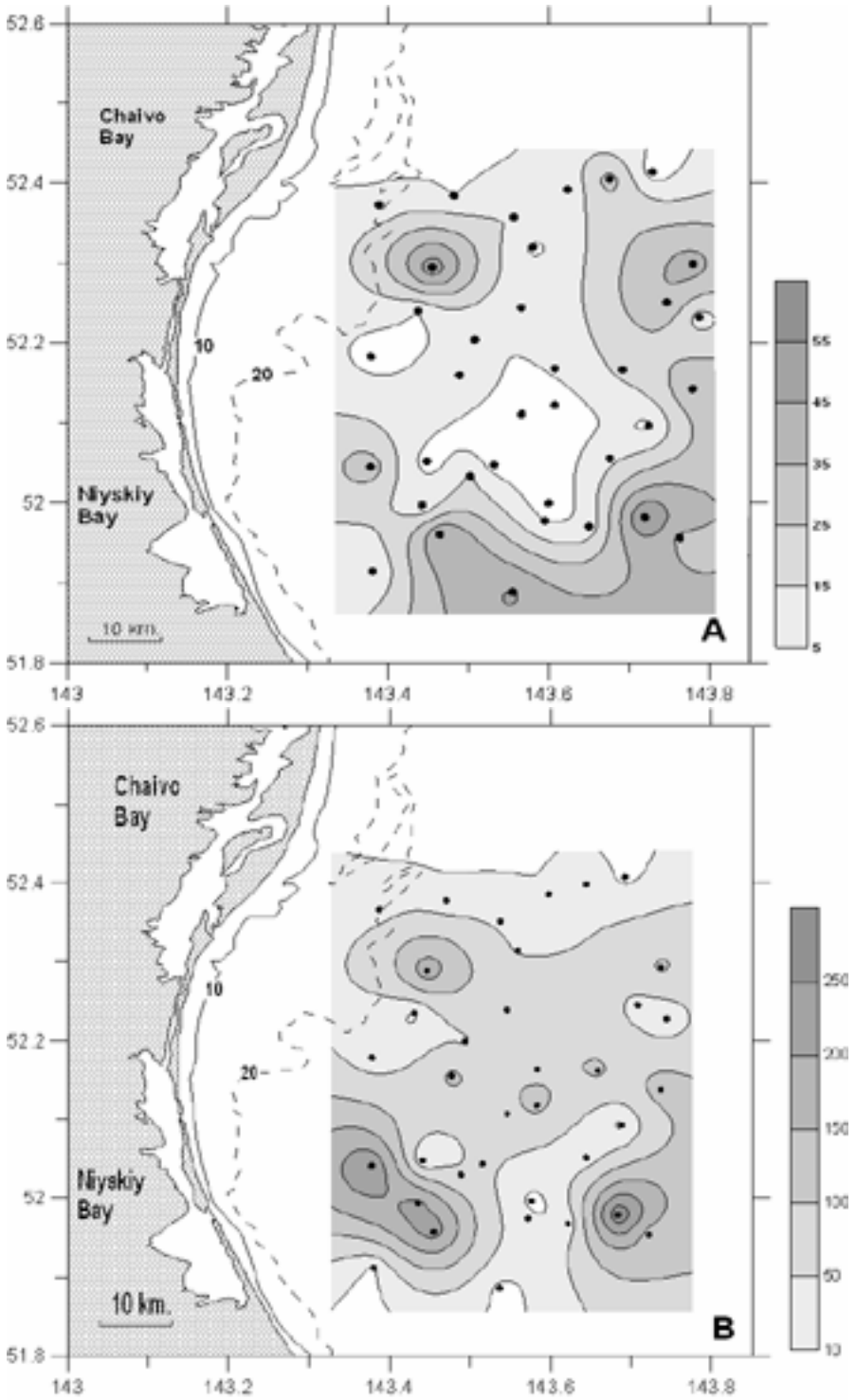

Figure 26. Distribution of **bivalve mollusk** colony density (A, spec./m^2) and biomass (B, g/m^2) in the Offshore Area in 2003.

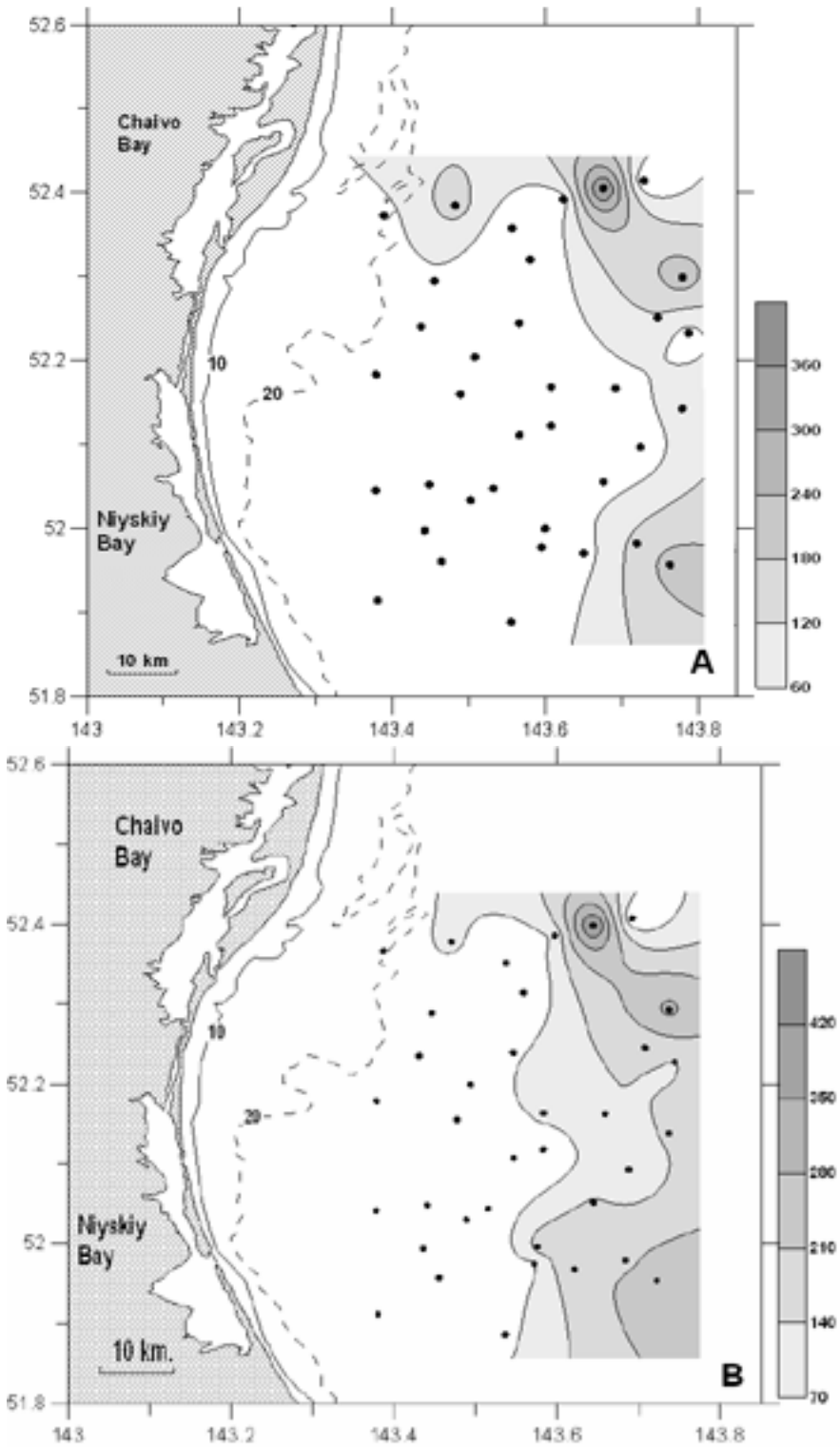

Figure 27. Distribution of **sea anemone** colony density (A, spec./m^2) and biomass (B, g/m^2) in the Offshore Area in 2003.

Photo 6. Bottom grab sample (0.2 m^2) from **cumacean and ampeliscid** complex.

Photo 7. Bottom grab sample (0.2 m^2) with **sea anemones and ampeliscids**.

Photo 8. Bottom grab sample (0.2 m^2) with **bivalve mollusks and ampeliscids**.

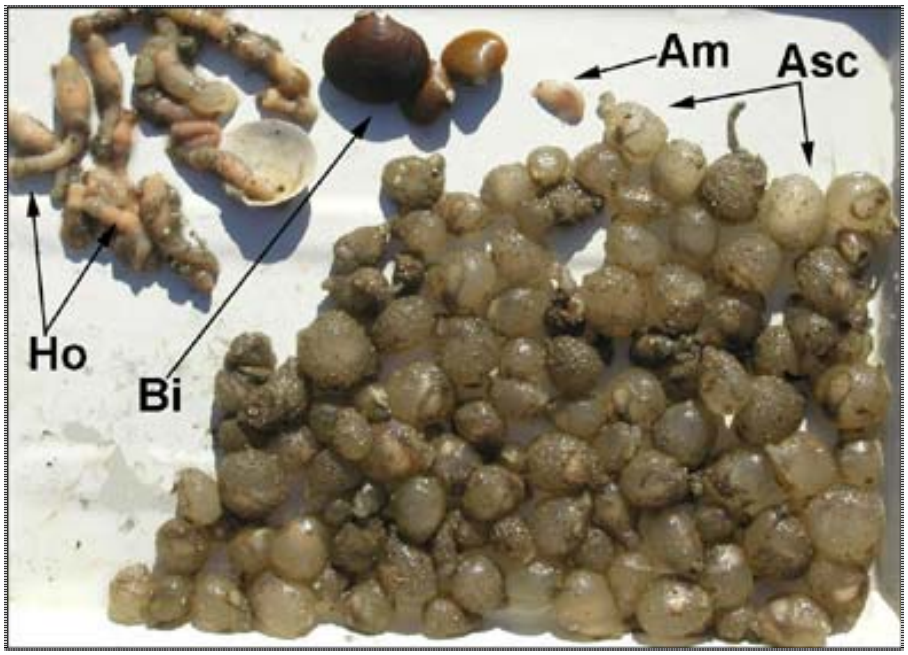

Photo 9. Bottom grab sample (0.2 m^2) from **Ascidia** complex.
Asc – ascidians; **Am** – amphipods; **Bi** – bivalve mollusks; **Ho** – holothurians (sea cucumbers).

4.3. Benthos at Gray Whale Feeding Sites

Bottom grab samples were collected for the first time in 2002 where gray whales were observed actively feeding (gray whale feeding sites) in the Piltun and Offshore areas. There were a total of 46 stations: 21 stations in the Piltun Area, and 25 stations in the Offshore Area. The average biomass in whale feeding sites in the Piltun Area was 234.4 g/m^2. Amphipods and isopods accounted for more than 50% of the total biomass. Whale feeding sites in the Offshore Area were located at depths of 33 to 45 m. The average biomass was 1228 g/m^2, with ampeliscids accounting for up to 560 g/m^2. None of the gray whale feeding sections in the Offshore Area conformed in benthos structure to the cumacean + ampeliscid complex or the flat sea urchin complex (Fadeev 2003).

There were 51 stations at whale feeding sites in 2003: 12 in the Piltun Area, and 39 in the Offshore Area (Fig. 28). The characteristics of bottom sediments at these stations are considered in Section 3.4.

4.3.1. Whale Feeding Sites in the Piltun Area

Benthos collections were gathered at 12 whale feeding sites in the range of 13-29 m (average depth was 18.6±1.6 m) in 2003. Most of the stations (9 stations) were at depths less than 20 m. As in 2002, most of the whales fed in the Piltun Area at depths less than 20 m.

Table 14 presents averaged data on the quantitative abundance of benthos by whale feeding sites. As in 2002, amphipods and isopods had the highest frequency of occurrence (100%). The biomass values for these groups are similar. Benthos in gray whale feeding sites is similar in structure to the coastal *Amphipoda* complex (Section 4.1.3).

Table 14. Distribution of Benthos Colony Density (A, spec./m^2) and Biomass (B, g/m^2) at Gray Whale Feeding sites in the Piltun Area in 2003.

Parameter	*Amphipoda*		*Isopoda*		*Bivalvia*		*Polychaeta*		*Pisces*		*Gastropoda*		**Average**	
	A	B	A	B	A	B	A	B	A	B	A	B	A	**B**
Average	2189	**101.34**	543	28.14	10	22.2	35	7.95	1	1.87	0	1.26	3139	164.2
St. deviation	653	11.11	244	10.32	2	6.33	20	3.93	0	1.87	0	1.02	848	18
Minimum	341	60.5	1	0.32	0	0	0	0	0	0	0	0	392	94.6
Maximum	7615	163	2560	92.42	25	62.17	233	40.33	8	20.57	3	11.38	7615	283.2

Distribution of amphipod biomass in the shallow zone of the Piltun Area based on diving data. The most important macrobenthos components in assessing the food supply for whales in the Piltun Area are amphipods and isopods. It was demonstrated based on diving data from 2001 that the greatest quantitative abundance for amphipods is observed in the range of 5-

15 m. The average amphipod biomass at depths of 5 and 10 m was 138 g/m^2 and 118 g/m^2, respectively (Fadeev 2002). The shallowest part of this range (less than 10 m) is missing from studies with bottom grab sampling even from a medium-displacement vessel due to technical limitations. In 2003, a diving transect was carried out during another IBM expedition at fixed depths of 1-3-5-7-10 m in the southern part of the Piltun Area. At each station, four samples were taken with a manual diving bottom grab with an area of 0.025 m^2. The transect location conforms to the Piltun 3 transect completed in 2001 and 1992 (Fig. 1: Fadeev 2002). A female gray whale with an actively feeding calf was observed later in this section at a depth of 3-4 m (**report cover photo**). The bottom at all stations was well-sorted fine-grained sand mixed with a small amount of medium-grained sand.

In the depth range from 1 to 15 m, 26 amphipod species were recorded, which is more than 60% of the total number of amphipod species in the Piltun Area (42 species). Five species have a frequency of occurrence higher than 25% (Table 15). These same species are also prevalent in regard to biomass at all depths. Three species of amphipods account for 92 to 100% of biomass at all depths: *Eogammarus schmidti, Pontoporeia affinis* and *Anonyx nugax.* The distribution of amphipods at the stations were distinctly aggregated. For example, the biomass of *E. schmidti* at a station with a depth of 3 m varied from 82 to 1120 g/m^2 in four samples. Maximum biomass for this species was observed in low places in the microrelief – between the ridges of current channels. The biomass of *P. affinis* at a depth of five meters varied from 27 to 740 g/m^2. Also in this case, the sample with the greatest biomass was taken in the area of low microrelief.

Table 15. Biomass (g/m^2) and Frequency of Occurrence (P, %) of Mass Species of Amphipods in the Shallow zone of the Piltun Area in 2003

Species	Depth, m					Average biomass	P, %
	1	3	5	7	10		
Eogammarus schmidti	**27.0**	**258.09**	**170.92**	11.04	15.06	96.42	91
Pontoporeia affinis	0	0.05	**49.51**	**135.76**	14.37	39.94	41
Anonyx nugax	0	0	0.28	**38.23**	2.98	8.3	33
Atylus ekmani	0	0.44	6.39	1.96	0	1.76	26
Anisogammarus pugettensis	0	0.04	0.79	3.62	0.63	1.02	37
Total	27.06	259.36	233.38	194.75	34.82	149.88	

Peaks of increased amphipod biomass at depths of 3 and 7 m (Fig. 29) are caused by the abundance of different species – *E. schmidti* at 3 m and *P. affinis* at 7 m (Photo 10). Feeding of gray whale calves in the Piltun Area at shallow depths near the shore can be linked specifically

to the abundance of *E. Schmidti* there. In light of the hydrodynamic instability in this zone, one can assume that accumulations of this species are formed during relatively calm periods.

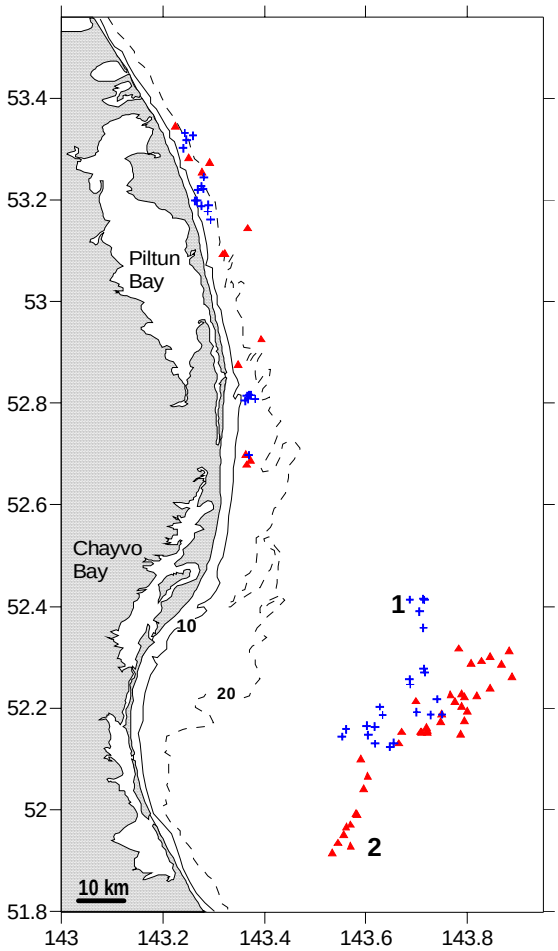

Figure 28. Diagram of locations of gray whale feeding sites in the Piltun and Offshore areas in 2002 (1) and 2003 (2).

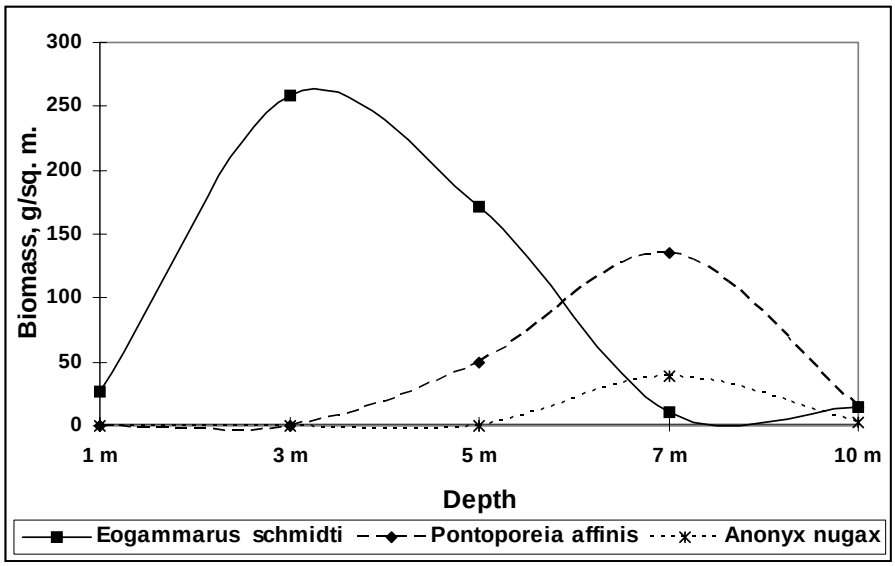

Figure 29. Variation in biomass (g/m^2) of mass species of amphipods with depth in the shallow zone of the Piltun Area.

4.3.2. Whale Feeding Sites in the Offshore Area

In the Offshore Area in 2003, 39 gray whale feeding sites were studied, at depths of 41-63 m (50.8±0.9 m, on the average). The quantitative characteristics of benthos at gray whale feeding sites in the Offshore Area are presented in Table 16. Benthos at whale feeding locations has high biomass values (up to 1351 g/m^2) and averages 605 g/m^2. Six benthos groups have a frequency of occurrence higher than 75%: amphipods, sea anemones, bivalve mollusks, polychaetes, decapod crustaceans and cumaceans. These groups account for 98% of the average biomass at whale feeding sites. The proportion of ampeliscids in total amphipod biomass varies from 95 to 100%.

Table 16. Benthos Colony Density (A, spec./m^2) and Biomass (B, g/m^2) at Gray Whale Feeding Sites in the Offshore Area.

Parameter	*Amphipoda*		*Actinia*		*Bivalvia*		*Polychaeta*		*Decapoda*		*Cumacea*		**Average**	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Average	9307	**358.2**	46	128.7	14	51.1	61	41.6	5	16.6	2381	9.2	11816	605.3
St. deviation	864	28.9	9	17	2	10	22	7.3	0	4	826	2.3	1431	46.5
Minimum	454	144.7	0	0	0	1.3	0	5.6	0	0	8	0.1	845	191.1
Maximum	22926	910.8	272	430.6	78	255.5	541	214	28	138.3	24658	60.7	19683	1351.9

All the benthos groups observed in the whale feeding areas are benthos mass groups in the Offshore Area and are part of the composition of three benthos complexes. Analysis of the similarity of the benthos structure at 39 whale feeding sites for three benthos complexes of the Offshore Area (Table 13) indicated that most of the stations at whale feeding sites (35 stations) have the greatest similarity to the amphipod *A. eschrichti* complex and the complex *A. eschrichti + Bivalvia + Actinia.* Similar results were obtained in analysis of benthos from whale feeding sites in 2002. In contrast to the data of 2002, four stations in 2003 showed the greatest similarity to the complex *Diastylis bidentata + A. eschrichti.* No whale feeding site had similarity to the flat sea urchin complex in either 2002 or 2003.

Observations of feeding of a single gray whale. Observations of the feeding of a gray whale at four consecutive sites were performed in September 2003. The distance between sites was 1.25 km for site one and 2, 0.49 km for sites two and three, and 0.67 km for sites three and four. The average distance between sites was 0.8 km. During these movements, the whale approached within 1.56 km of site one, i.e., it made a circular movement. At each of the four whale feeding sites, three replicate bottom grab samples were taken.

Feeding took place within a narrow depth range: sites 1-3 – 53 m; site 4 – 53.6 m. The bottom at all stations was fine-grained sand mixed with medium-grained sand.

Table 17. Benthos Colony Density (A, spec./m^2) and Biomass (B, g/m^2) at 4 Consecutive Gray Whale Feeding Sites in the Offshore Area.

Group	**Site 1**		**Site 2**		**Site 3**		**Site 4**		Average	
	A	B	A	B	A	B	A	B	A	B
Amphipoda	6747	**378.53**	3387	**309.27**	16215	**650.14**	6923	**395.53**	8318	433.37
Actinia	38	218.78	5	10.58	27	56.98	15	42.28	21	82.16
Polychaeta	48	31.25	12	10.78	31	27.25	17	27.28	27	24.14
Bivalvia	2	36.65	2	28.83	5	3.31	2	2.05	3	17.71
Decapoda	5	1.98	7	9.08	5	13.02	2	0.16	5	6.06
Cumacea	130	1.5	42	0.38	853	7.07	12	0.17	259	2.28
Total	6973	669.85	3461	386.66	17146	758.03	6979	468.73	8640	570.82

Data on benthos are presented in Table 17. There are 10 groups of invertebrates that have a frequency of occurrence higher than 25%, and six of these groups have a frequency of 100%: amphipods, sea anemones, polychaetes, bivalve mollusks, decapods and cumaceans. All these groups have the highest frequency of occurrence at the 39 gray whale feeding sites in the Offshore Area (Table 16). They account for more than 99% of the average benthos biomass.

Moreover, three groups account for more than 90% of biomass: amphipods (76% of average biomass), sea anemones (14%) and bivalve mollusks (3%). These groups are prevalent in regard to biomass at the 39 whale feeding sites throughout the area (Table 16).

The materials obtained from four feeding sites make it possible to analyze the roles of individual amphipod species. The amphipod composition includes 25 species, with a total biomass of 433.4 g/m^2. Of these species, five have a frequency of occurrence of 100%. They account for more than 95% of total amphipod biomass: *Ampelisca eschrichti* (89%), *Anonyx nugax* (1.5%), *Protomedeia fasciata* (1.2%), *Photis vinogradovi* (1.2%) and *Maera loveni* (1%). As in other sections of the Offshore Area, the dominant amphipod species is *A. eschrichti.* In regard to benthos structure, the four construction feeding sites have the greatest similarity to two complexes: site one to the complex *A. eschrichti + Bivalvia + Actinia,* and points two to four to the amphipod *A. eschrichti* complex.

Therefore, the gray whale, in making its circular movement, fed in a benthos area with high abundance of amphipod *A. eschrichti* (more than 300 g/m^2). We note that circular movement of gray whales in feeding has been observed repeatedly in the Offshore Area.

4.3.3. Locations of Gray Whale Feeding Sites in Relation to Benthos Distribution

Piltun Area. Data from aerial observations on the locations of 306 whale feeding sites in the Piltun Area in 2001 and 2002 were used in preparing Fig. 30. The data were obtained by S.A. Blokhin and N.V. Doroshenko of TINRO-Center. The data also includes 32 whale feeding sites from shipboard observations in 2002 and 2003 at which bottom grab samples were collected to study the benthos composition. Hence the diagram shows 338 gray whale feeding sites in the Piltun Area for the period 2001 – 2003.

An overwhelming majority of the whale feeding sites in Figure 30 are located between the shoreline and the 20 m isobath, mainly along the 10 m isobath. The distribution of most of the feeding sites at depths less than 20 m is entirely consistent with data of the benthos study based on a standard station grid and the results of the benthos study at actual whale feeding sites. It was shown based on diving data from 2001 that the absolute biomass levels for gray whale prey benthos and the proportion of prey benthos in total benthos biomass are at a maximum at depths of 5-15 m (Fadeev 2002). The results of bottom grab sampling in 2002 confirmed that the greatest variations in the benthos distribution occur in the range of 15-20 m; a zone with prevalence of flat sea urchins is situated at depths greater than 20 m in the Piltun Area (Fadeev 2003). Based on data from 2002 and 2003, three benthos complexes have been distinguished within the Piltun Area: a coastal amphipod complex, a complex with prevalence of bivalve

mollusks, and a flat sea urchin complex. The 20 m isobath was taken as the provisional boundary (Section 4.1.3 of this report).

Figure 30 shows that there are nine whale feeding sites at depths greater than 20 m (east of the 20 m isobath), which is 3% of the total number of observations. All these points are in the zone of prevalence of flat sea urchins. An extremely low proportion of prey organisms is characteristic for the flat sea urchin complex. According to bottom grab sampling results for 2002 – 2003, however, samples with quite high isopod biomass were observed in a number of cases at depths greater than 15-20 m, caused by accumulations of the large isopod *Saduria entomon* (Photo 11).

Such accumulations are rare and occupy a small area in the flat sea urchin zone. Accumulations of *Saduria entomon* with biomass greater than 30 g/m^2 were observed at six stations in 2003. Isopods are present at each of these stations in only one bottom grab sample out of the three taken at the station. Flat sea urchins without isopods, with biomass up to 1200 g/m^2 were prevalent in the other two samples at these stations.

Since 99 samples were obtained in 2003 at depths greater than 15 m, the proportion of samples with isopods is about 6%, and the proportion is less than 3% counting the bottom grab collections in 2002. However, this does not exclude the possibility of whales' feeding at depths greater than 20 m in the sea urchin zone in individual cases. It must be taken into account, however, that the total isopod biomass there <u>is not comparable</u> to the total biomass of amphipods and small isopods *Synidotea cinerea* in the coastal complex of the Piltun Area.

Therefore, a small number of feeding sites at depths greater than 20 m in the Piltun Area can be potentially explained by feeding of whales in local patches of isopods. Accumulations of isopod *Saduria entomon* are nothing other than "food biomass oases" in a "desert" of sea urchins. This isopod, like some other benthos species, was considered as a potential prey item in the Piltun Area based on diving results from 2001 (Fadeev 2002).

<u>Offshore Area.</u> The map of the locations of whale feeding sites in the Offshore Area (Fig. 31) includes 123 sites from aerial observations in 2001-2002 and 66 sites from shipboard observations in 2002-2003, at which bottom grab samples were collected from the vessel to study the benthos composition. The amphipod biomass distribution in the Offshore Area is also presented in Figure 31.

Figure 31 distinguishes a central zone in which most of the feeding sites from aerial observations in 2001-2002 and shipboard observations in 2002 and some of the sites from shipboard observations in 2003 are located. The other sites from 2003 are located northeast and

south of the central area. The 2003 sites (10 stations) located northeast of the central region are outside the boundaries of the standard benthos survey area in the diagram (they are outside the amphipod biomass distribution diagram in Fig. 31). Benthos was studied at a total of 39 whale feeding sites in 2003. Of these sites, 29 were in the Offshore Area, and 10 were outside the boundaries of the area.

One might suppose that feeding of whales outside the Offshore Area is the result of differences in the benthos structure. For example, the biomass of food organisms there is substantially higher than in the main part of the area. However, analysis of data on the abundance of the basic benthos groups fails to confirm this hypothesis. Table 18 shows that the dominant benthos groups have similar biomass values outside the main area (10 stations) and inside it (29 stations). Comparison of the diagram of biomass distribution for amphipod *Ampelisca eschrichti* and the feeding sites shows that most of the gray whale feeding locations in the Offshore Area (96%) are associated with sections with amphipod biomass of 300 g/m^2 or more (Fig. 31).

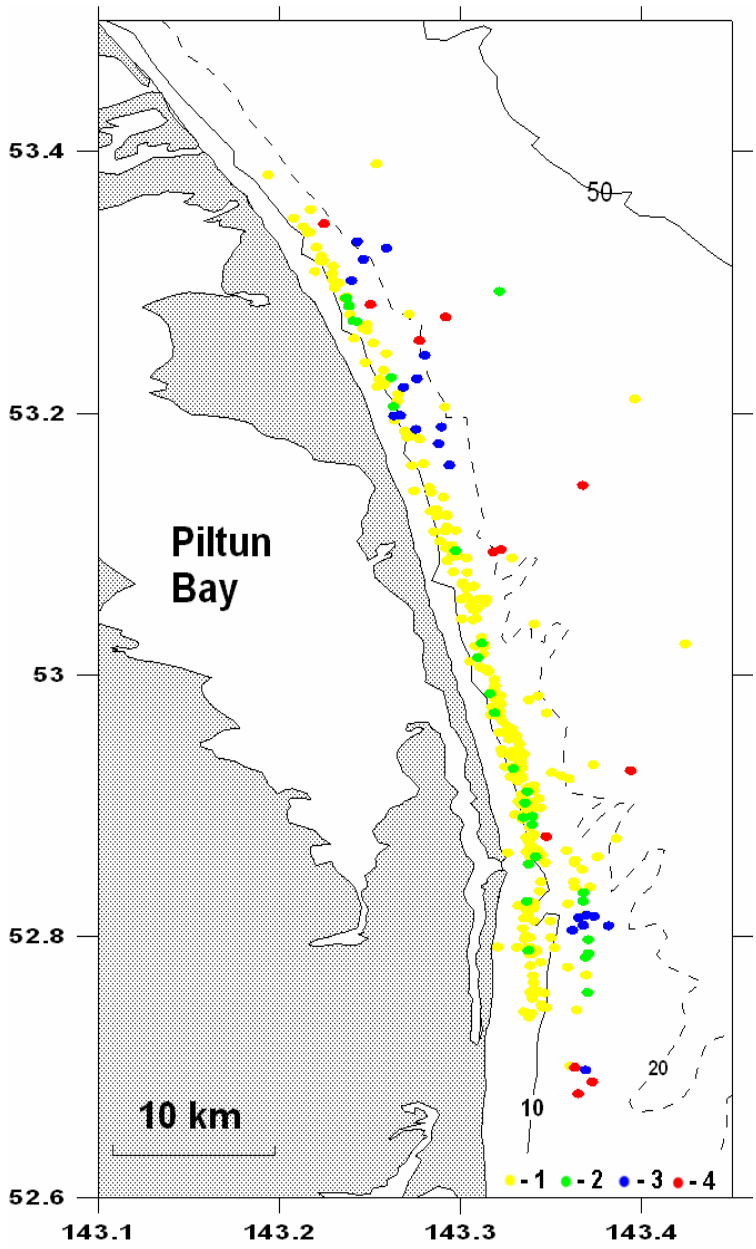

Figure 30. Diagram of the locations of whale feeding sites in the Piltun Area.
1 – whale feeding sites from aerial observations in 2001;
2 – whale feeding sites from aerial observations in 2002;
3 – benthos collection stations at whale feeding sites in 2002;
4 – benthos collection stations at whale feeding sites in 2003.

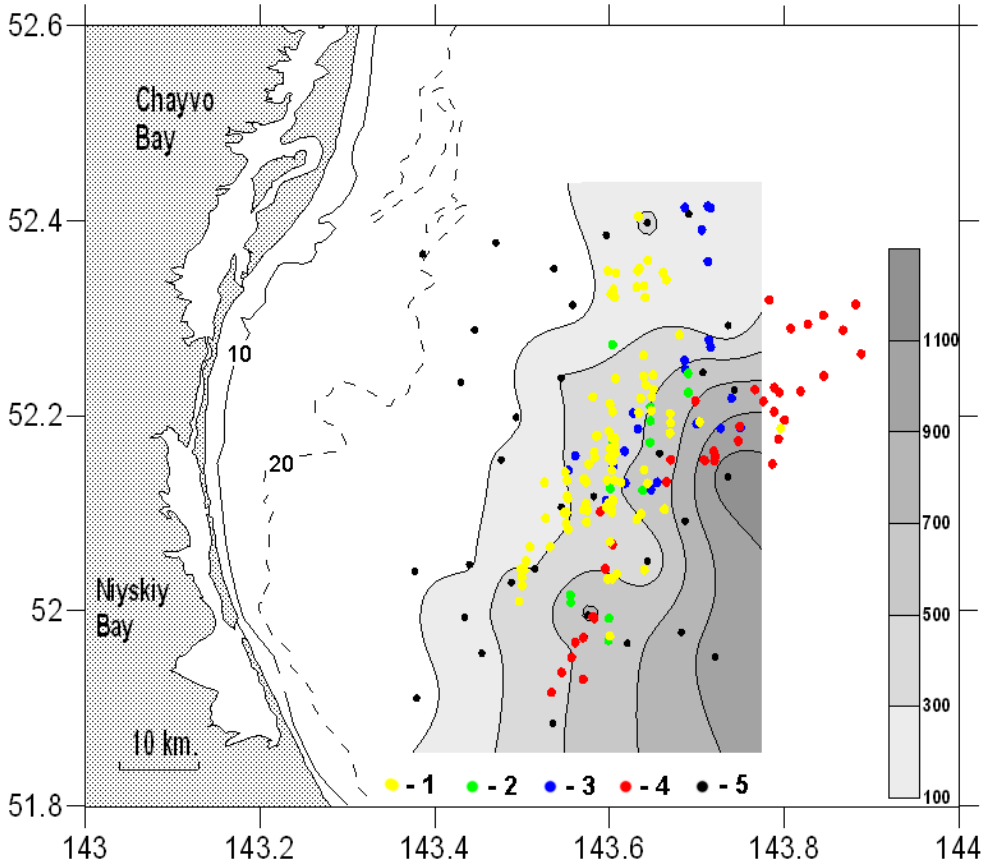

Figure 31. Diagram of the biomass distribution for amphipod *Ampelisca eschrichti* (g/m^2) and whale feeding sites in the Offshore Area.

1 – whale feeding sites from aerial observations in 2001;
2 – whale feeding sites from aerial observations in 2002;
3 – benthos collection stations at whale feeding sites in 2002;
4 – benthos collection stations at whale feeding sites in 2003;
5 – standard benthos collection stations (36 stations) in 2003.

Table 18. Biomass of Basic Benthos Groups (g/m^2) at Whale Feeding Sites Outside the Offshore Area (10 Stations) and Inside the Area (29 Stations).

Parameter	***Amphipoda***		***Actinia***		***Bivalvia***		Total Biomass	
	10 stations	29 stations	10 stations	29 stations	10 stations	29 stations	10 stations	29 stations
Average	**344.45**	**362.93**	119.74	131.75	64.86	46.32	639.77	609.65
St. deviation	34.63	47.33	34.51	19.89	22.64	11.02	61.39	74.59
Minimum	181.08	114.67	0	0	18.55	0	200.38	228.09
Maximum	499.23	910.8	301.68	430.57	255.52	248.74	1356.31	907.55

Photo 10. Sample with amphipods *Pontoporeia affinis* and *Eogammarus schmidti.* (Piltun Area, depth 7 m; diving bottom grab, 0.025 m^2; from hollows between sand wave ridges).

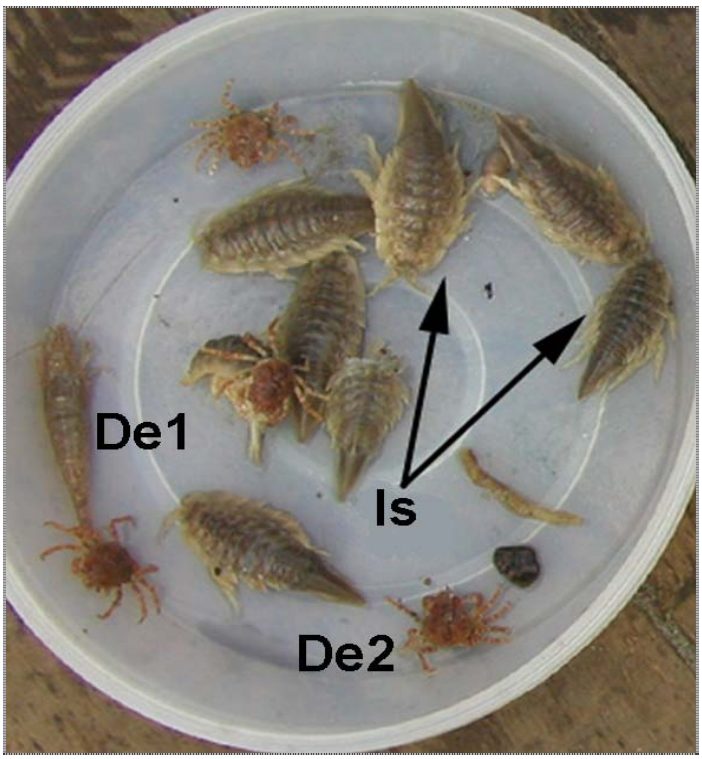

Photo 11. Bottom grab sample with isopods *Saduria entomon.*
Is – isopods *Saduria entomon*; **De1 –** sand shrimp *Crangon septemspinosa*; **De2** – juvenile crab *Hyas coarctatus*.

CONCLUSION

1. Bottom grab collections of benthos performed in July-September 2003 in the coastal waters of Northeastern Sakhalin in the section between Odoptu Bay and Niyskiy Bay served as material for the study. Benthos studies were performed in two gray whale feeding grounds: the Piltun Area (Piltun Bay) and the Offshore Area (section with depths of 30 – 60 m, far from the shoreline in the Chayvo Bay – Niyskiy Bay area) (Fig. 1). Bottom grab benthos collections were gathered according to a standard grid of 150 stations (450 samples). In addition, the benthos collections included 51 stations from gray whale feeding sites in the Piltun (12 stations) and Offshore (39 stations) areas.

2. During the study period, the temperature of the water surface layer in the Piltun area varied considerably: from 2.9 °C in July to 9.8 °C in September. The water temperature in September 2003 was lower than during the corresponding period in 2002. Reliable differences in water temperature were observed in August 2003 and 2001. The water temperature in August was 8.78±0.8 °C (Fadeev 2002) and 4.01±0.82 °C in 2001 and 2003, respectively, in the same sections of the Piltun Area. It is possible that the lower temperatures in 2003 are related to special features of the ice situation in this area. The temperature of the surface water layer in the Offshore Area did not differ substantially from the data for 2002. The distributions of temperature and salinity were more regular than in the Piltun Area.

3. The particle size distribution of 150 bottom sediment samples indicated that prevalence of sandy (psammite) fractions in the soil is characteristic of both areas. Sands are prevalent at 80% of the stations (fine sands at 65%, and medium sands at 15%), and gravel-pebble bottoms mixed with sands of varying grain size account for 15%. The proportion of the fine sand fraction is in excess of 60% at most of the stations. The nature of the distribution and the fractional compositions of sediment groups are similar to the data for 2001 and 2002.

4. The bottom sediments at gray whale feeding locations were investigated at 51 stations. Well-sorted fine sands were prevalent at all whale feeding sites in both areas. About 15% of the whale feeding sites has medium-sorted mixed sandy bottoms (medium and fine sands). A small number of whale feeding sites in the Offshore Area had a fine sandy bottom mixed with an aleurite fraction (up to 25%).

5. [sic] Data from 63 bottom grab sampling stations in a depth range from 8 to 33 m (average collection depth 18.7±0.9 m, and 20.4±0.8 m in 2002) were used to analyze the quantitative distribution of benthos in the **Piltun Area** in 2003.

The average macrobenthos biomass in the area at depths of 8–30 m in 2003 was 555.7±69.4 g/m^2 with a colony density of more than 6000 spec./m^2. The flat sea urchin *Echinarachnius parma* has the greatest proportion in the biomass (70%). The proportion of sea urchins in total benthos biomass increases with depth from 20% at 15 m to 95% at 25-30 m. The biomass of the basic component in the diet of whales – amphipods – decreases from 146 g/m^2 (74% of total benthos biomass) at a depth of 8-11 m to 9 g/m^2 (1.2%) in the range of 26-30 m. The sharpest variations in the quantitative abundance of benthos are observed in the range of 15-20 m. At most stations of the Piltun Area, a sharp decrease in the biomass of amphipods, isopods and bivalve mollusks and an increase in the biomass of flat sea urchins occur at these depths. Materials from 2003 confirm the basic trends in the distribution of total benthos biomass in the Piltun Area observed in analysis of the collections from 2001 and 2002.

Several areas of higher biomass of crustaceans (amphipods and isopods) with a patchy distribution were observed in the shallow zone of the Piltun Area. The average amphipod biomass is at a depth of 8-30 m is 54.6 g/m^2 (9.8% of total biomass). More than 95% of amphipod biomass is accounted for by four species: *Pontoporeia affinis* (68.6% of total amphipod biomass), *Eogammarus schmidti* (19.3%), *Eohaustorius eous eous* (4.3%) and *Anisogammarus pugettensis* (3.2%). Amphipods have their highest values of quantitative abundance indicators at depths less than 15 m. Amphipods make up 72% of total benthos biomass at depths of 8-10 m; 1% at depths greater than 20 m. Analysis of the size composition of the four mass species of amphipods indicated that the proportion of individuals with body sizes larger than 6 mm is from 48 to 100% for the different species. Hence most of the individuals of the amphipod mass species are available as food for whales.

Based on materials from bottom grab collections for 2002-2003 (113 stations) in the Piltun Area, three macrobenthos complexes were distinguished. Two groups of benthos organisms occupy the main bottom area for biomass: a shallow-water coastal <u>amphipod complex</u> with high proportion of food objects, and a deeper-water <u>flat sea urchin complex</u> with an extremely low proportion of food objects. The provisional boundary between the complexes is located at depths of about 20 m. The average biomass of the <u>amphipod complex</u> (185.71 g/m^2) is accounted for primarily by amphipods – 71%, isopods – 16%, and bivalve mollusks – 8%. The total amphipod biomass of 132.3±11.5 g/m^2 is accounted for by 4 species: *Pontoporeia affinis, Eogammarus schmidti, Eohaustorius eous eous* and *Anisogammarus pugettensis.*

Amphipods *Pontoporeia affinis*, a saltwater Pan-Arctic circumpolar species that inhabits northern Arctic seas and lakes of Northern Europe and North America, had the greatest

abundance and frequency of occurrence in the coastal amphipod complex in 2001-2003. It is encountered in the Piltun Area in both freshened Piltun lagoon areas and in offshore areas with normal salinity. Age groups 0+ and 1+ can be distinguished clearly in samplings of individuals of this species from 2002 (n = 1035) and 2003 (n =2052). Consequently, this species has a one-year life cycle in the Piltun Area. High quantitative abundance figures for the amphipod complex in the Piltun Area are conditioned by its highly eurybiontic nature, short life cycle and high growth rates of the dominant amphipod species – *Pontoporeia affinis*.

6. In the **Offshore Area** there were 36 bottom grab stations (108 samples) at depths of 18 to 54 m (average depth 35.9±1.7 m, and 37±1.6 m in 2002). Amphipods, cumaceans, bivalve mollusks and sea anemones are prevalent (more than 50%) in regard to frequency of occurrence. These groups account for more than 95% of benthos. The average total benthos biomass for the collections in 2003 was significantly lower than in 2002 (630.1±64.3 g/m^2 and 1052.8±104.8 g/m^2, respectively; t-test, $t = 3.27$, $df = 70$, $p < 0.05$). Year-to-year differences in average biomass are the result of the high degree of aggregation in the benthos distribution in the Offshore Area. The number of samples with maximum biomass values was significantly lower in 2003 than in 2002.

The biomass of amphipods, the most important component in the diet of whales in the Offshore Area, was 343.8±52.8 g/m^2 and 437.1±56.2 g/m^2 in 2003 and 2002, respectively. Year-to-year differences in average amphipod biomass are not reliable. The spatial distribution of abundance indicators for amphipods is similar for 2003 and 2002: biomass increases in moving away from the shore toward deeper water areas.

Based on materials from 2002-2003 (72 stations), four benthos complexes were distinguished in the Offshore Area. A complex with prevalence of the amphipod *Ampelisca eschrichti* has the greatest importance for assessing the food potential of the area. The average depth is 44.5 m. It occupies the eastern part of the Offshore Area. The average biomass is 1122±68 g/m^2, and the amphipod biomass is more than 730 g/m^2. At individual stations, ampeliscid biomass is 95-100% of total amphipod biomass. The maximum ampeliscid biomass had similar values for 2002 and 2003 of 1312 and 1237 g/m^2.

7. In 2002, there were 51 bottom grab stations at whale feeding sites in the Piltun (12 stations) and Offshore (39 stations) areas. Amphipods and isopods have the highest frequency of occurrence (100%) in whale feeding grounds in the Piltun Area. Benthos at the whale feeding sites is similar in structure to the *Amphipoda* coastal complex.

A diving transect was carried out during another IBM expedition in the southern part of the Piltun Area in July 2003 at depths of 1, 3, 5, 7 and 10 m. Diving operations on this transect were conducted in 2001 and 1992 (Fadeev 2002). A female gray whale was observed later in the transect area with an actively feeding calf at a depth of 3 – 4 m (report cover photograph). Three species make up the basis of amphipod biomass (from 92 to 100%) at all depths: *Eogammarus schmidti, Pontoporeia affinis* and *Anonyx nugax.* The distribution of amphipods at the stations has a distinctly aggregated nature. The biomass of *E. schmidti* at a station with a depth of 3 m varied from 82 to 1120 g/m^2 in four samples. The average amphipod biomass varied from 195 to 260 g/m^2 in the range of 3-7 m. Peaks of increased amphipod biomass at these depths are caused by abundance of different species: *E. schmidti* (3 m) and *P. affinis* (7 m). Feeding of gray whale calves near the shore at shallow depths in the Piltun Area is linked to numerical abundance of the amphipods *E. schmidti.* Considering the hydrodynamic instability in this zone, one can assume that accumulations of this species are formed during relatively calm periods.

The average amphipod biomass at 39 whale feeding sites in the Offshore Area was 358 g/m^2, and ampeliscids account for 95 to 100% of total biomass. Benthos at the feeding sites is similar to the benthos complexes of the Offshore Area with prevalence of ampeliscids.

Observations of feeding of a gray whale at four consecutive sites were performed in September 2003. Amphipods *A. eschrichti* were prevalent at all the sites investigated, with biomass of more than 300 g/m^2.

8. The locations of gray whale feeding sites according to data of aerial observations in the Piltun and Offshore areas in 2001-2002 match the benthos distribution in these areas well. An overwhelming majority of the whale feeding sites in the Piltun Area according to aerial survey records are located between the shoreline and the 20 m isobath, mainly along the 10 m isobath. This is entirely consistent with the distribution of the coastal complex with prevalence of amphipods in the Piltun Area. About 3% of the feeding sites were located at depths greater than 20 m. One can assume that the small number of whale feeding sites at depths greater than 20 m can be explained by feeding of whales in local spots of isopod *Saduria entomon* (Photo 11). The locations of whale feeding sites in the Offshore Area matches the amphipod biomass distribution well – most of the gray whale feeding locations (96%) are associated with areas with amphipod biomass of 300 g/m^2 or more.

Therefore, there are two summer feeding grounds for gray whales of the Korean-Okhotsk population off Northeastern Sakhalin differing primarily in the structure of benthos complexes. Whales feed in the Piltun Area mainly within a shallow-water benthos complex with prevalence

of amphipods and isopods. Mobile deposit-feeder amphipods distinguished by eurybiontic nature, short life cycle and high growth rates are dominant in the complex. Feeding areas in the Offshore Area are associated with complexes with prevalence of the seston-feeder amphipod *Ampelisca eschrichti.* High abundance levels and aggregation in the spatial distribution of the dominant species are characteristic of ampeliscid amphipod colonies, which are a classic example of gray whale food objects in the North Pacific.

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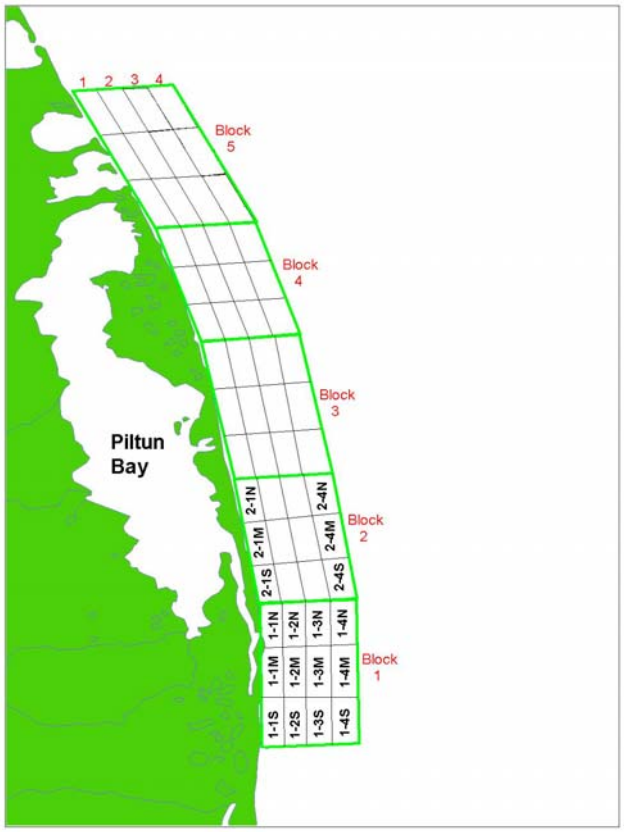
APPENDICES 1 - 6

TO FINAL REPORT

BENTHOS AND PREY STUDIES IN FEEDING GROUNDS OF THE OKHOTSK-KOREAN POPULATION OF GRAY WHALE

Appendix 1. Additional Figures.



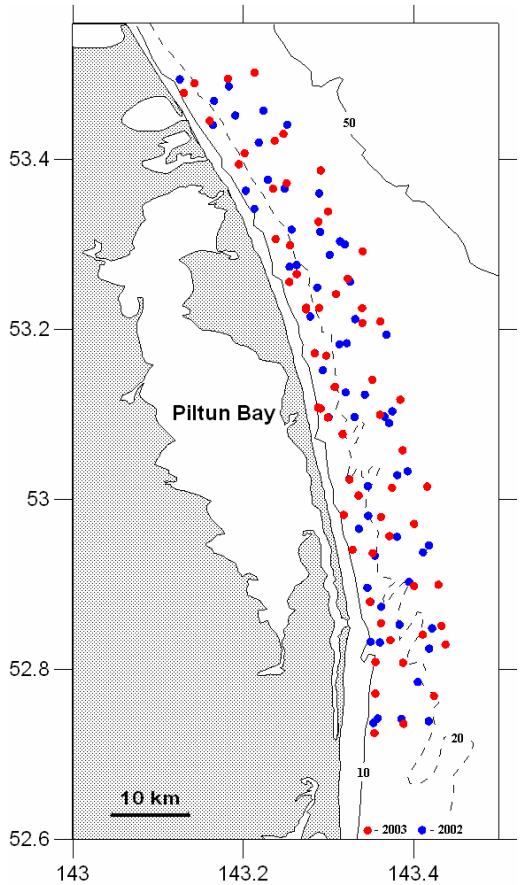
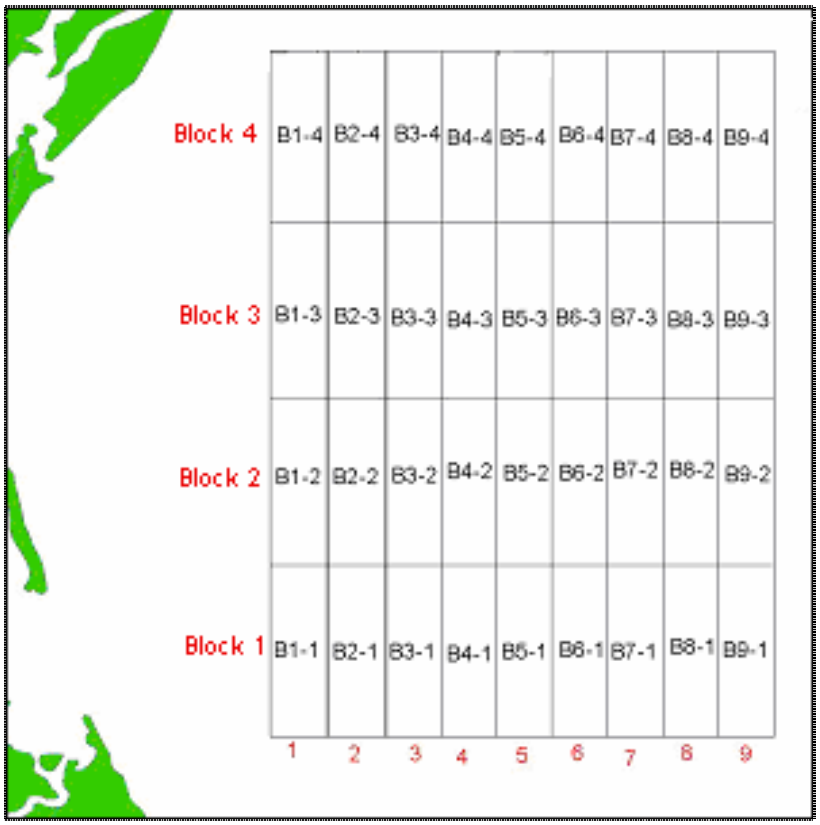


Figure A1.1. Diagram of unit locations of the Piltun Area and the stations 2002–2003.



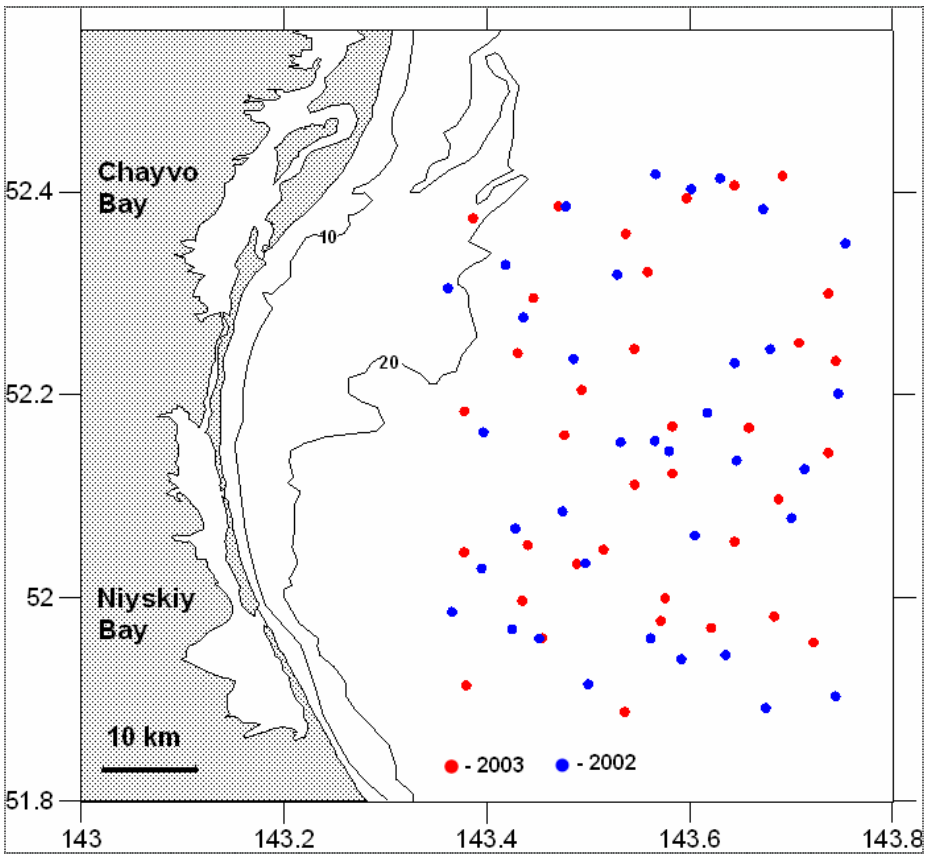


Figure A1.2. Diagram of unit locations in the Offshore Area and the stations 2002–2003.

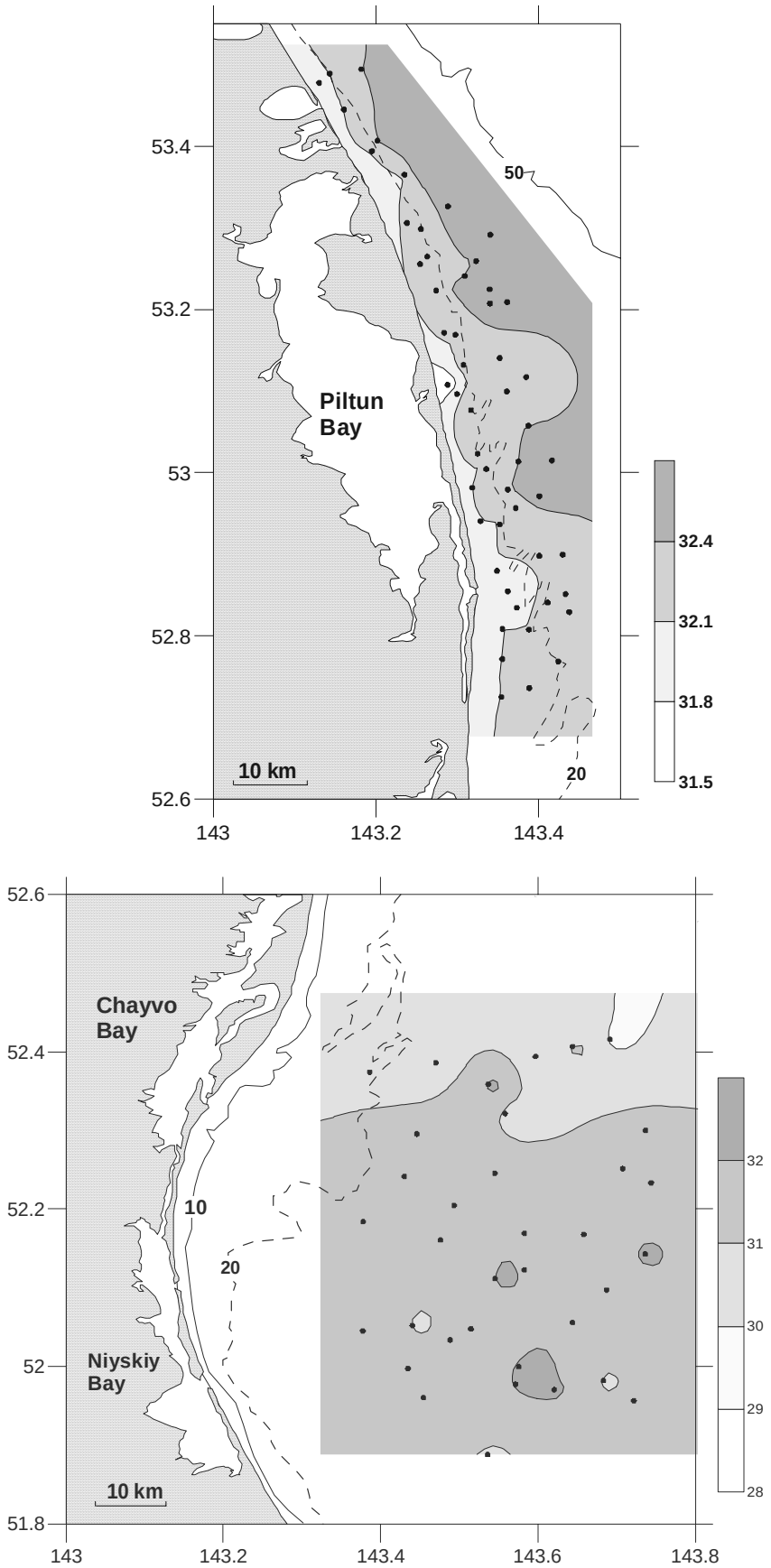


Figure A1.3. Distribution of salinity (S,‰) of the surface water layer in the Piltun and Offshore areas.

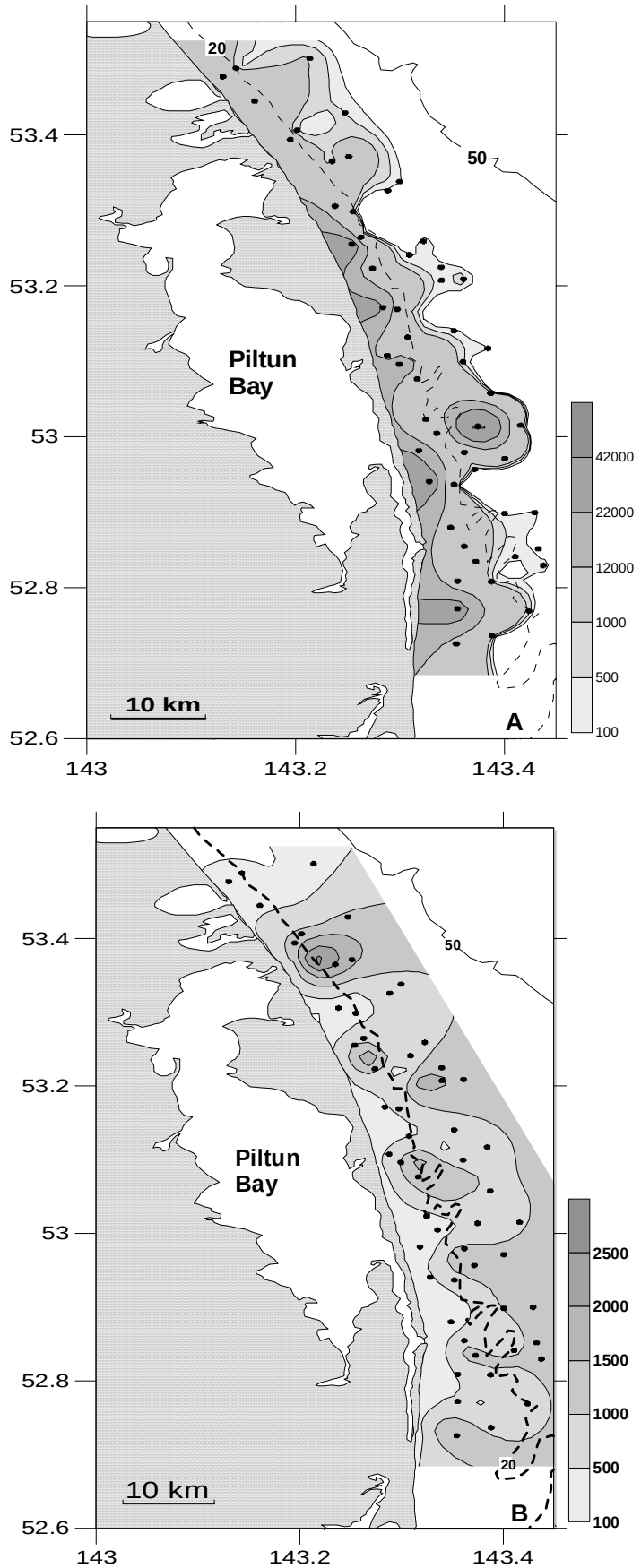


Figure A.1.4. Distribution of overell colony density (A; spec./m^2) and biomass (B; g/ m^2) of macrobenthos in the Piltun Area.

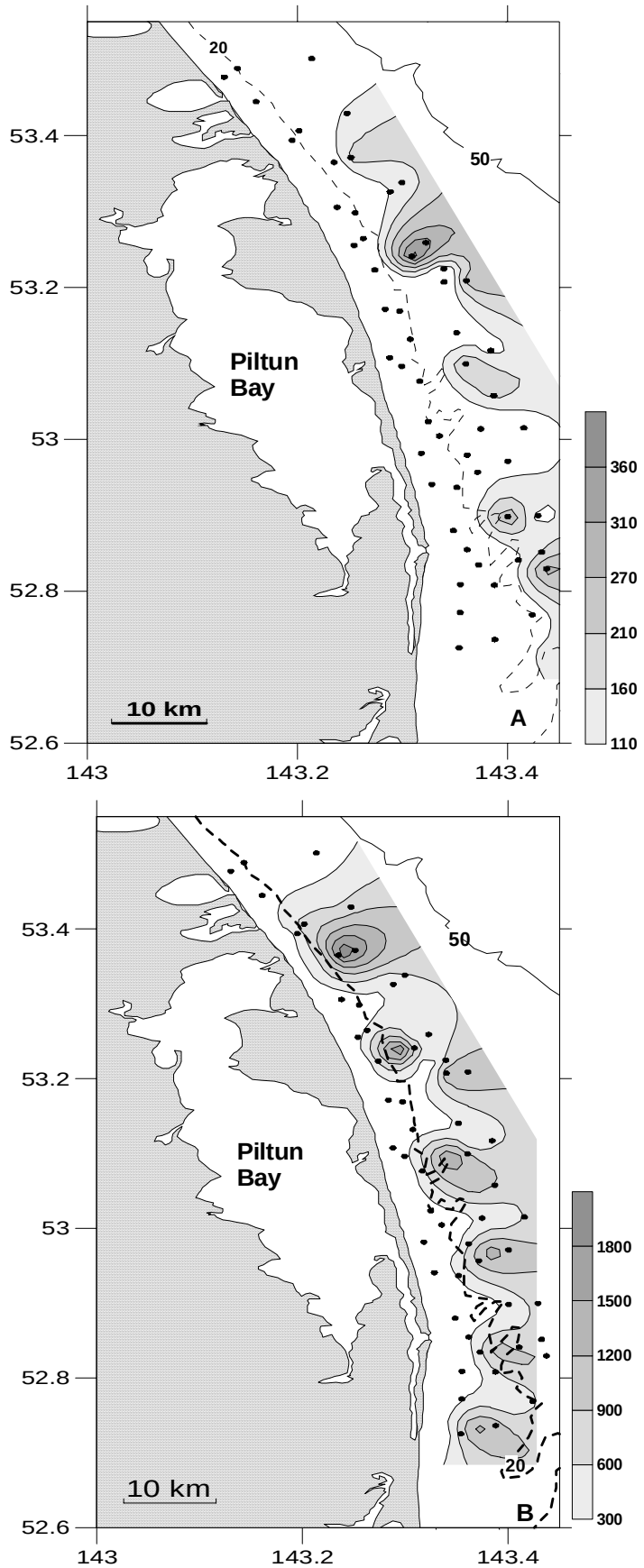


Figure A.1.5. Distribution of colony density (A; spec./m^2) and biomass (B; g/ m^2) of flat sea urchins *Echinarachnius parma* in the Piltun Area.

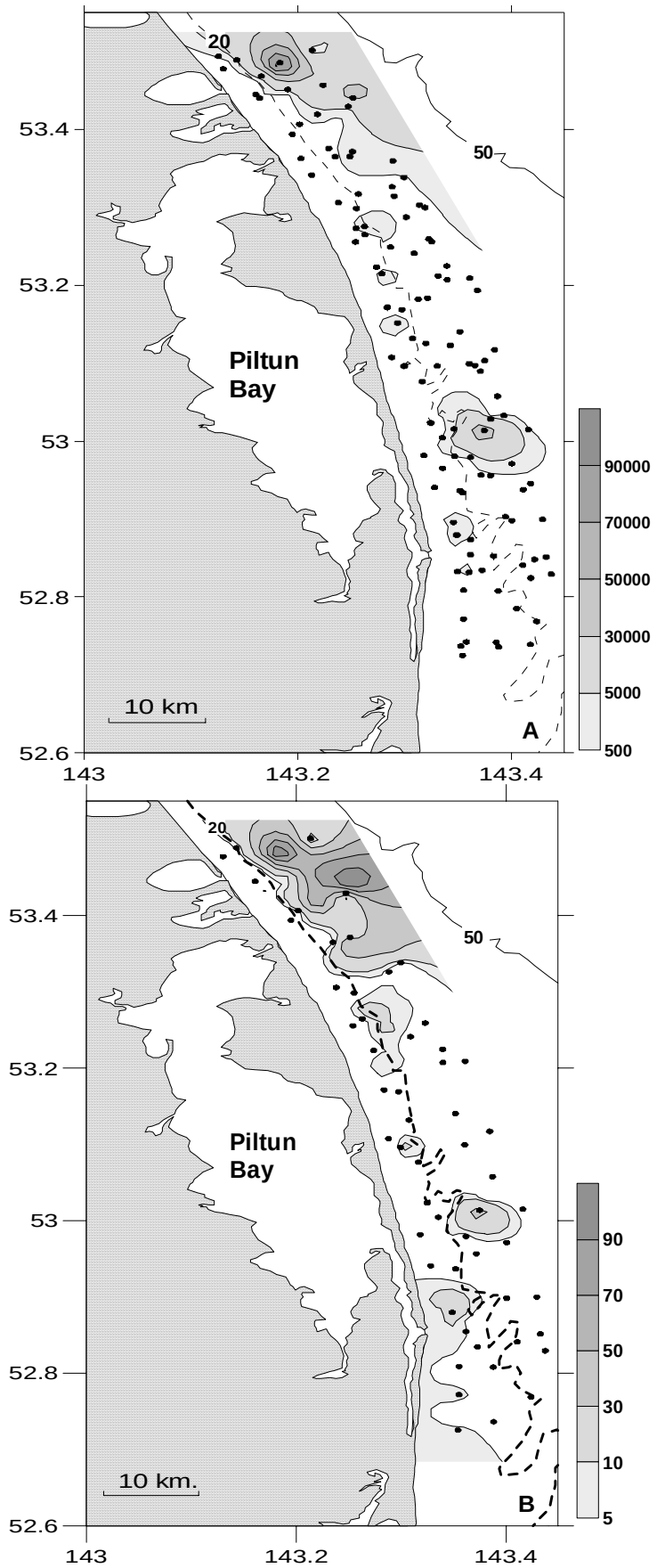


Figure A.1.6. Distribution of colony density (A; spec./m^2) and biomass (B; g/ m^2) of cumaceans in the Piltun Area.

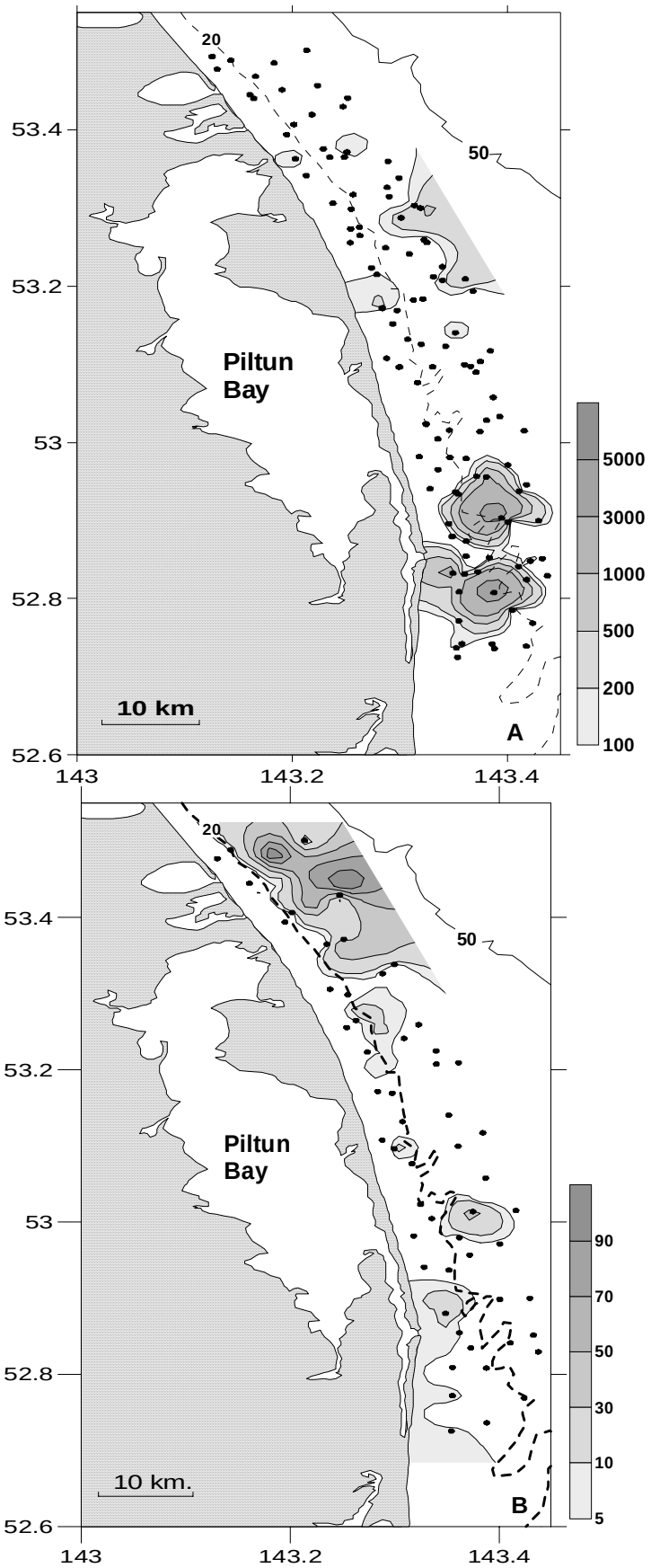
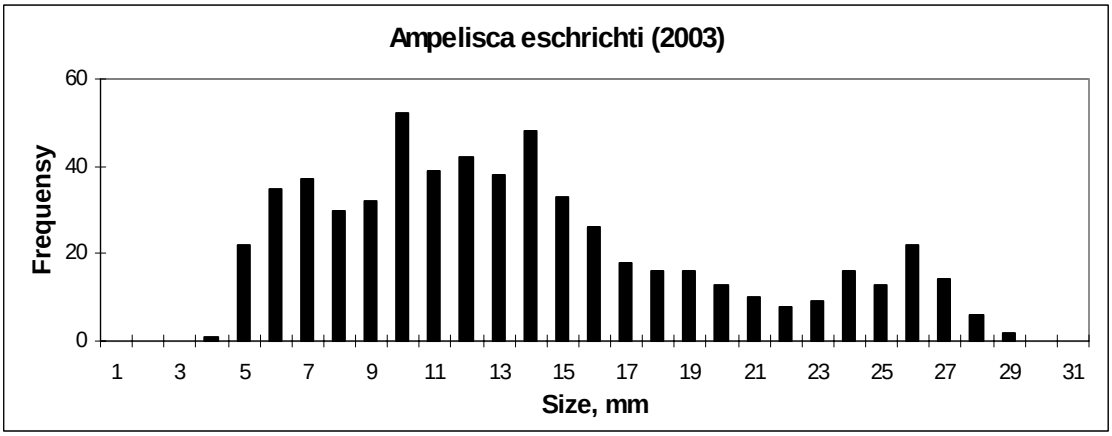
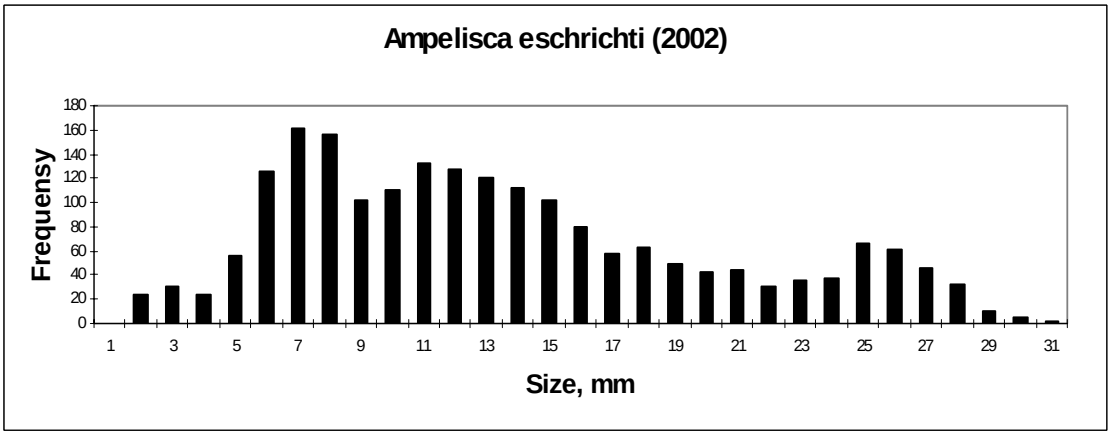


Figure A.1.7. Distribution of colony density (A; spec./m^2) and biomass (B; g/ m^2) of bivalve mollusks in the Piltun Area.





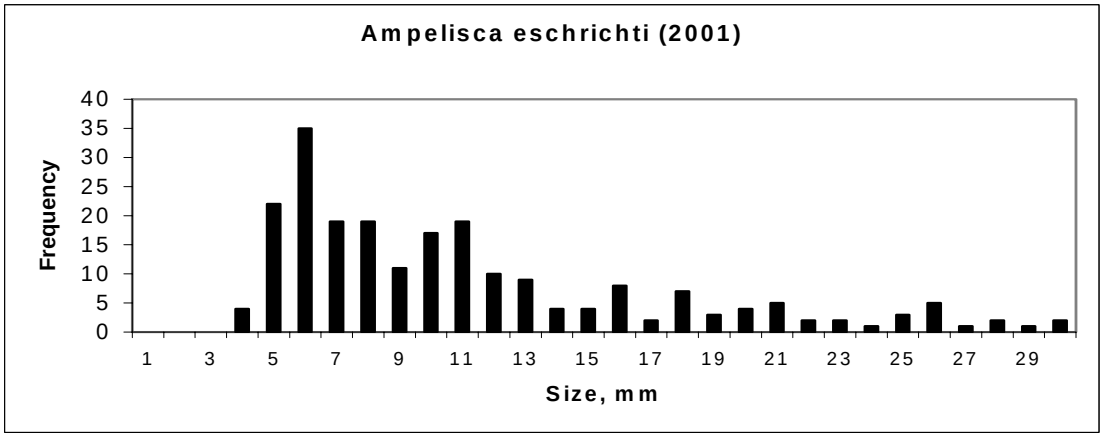


Figure A1.8. Histograms of the distribution of the size (mm) of amphipod *Ampelisca eschrichti* in 2001-2003.

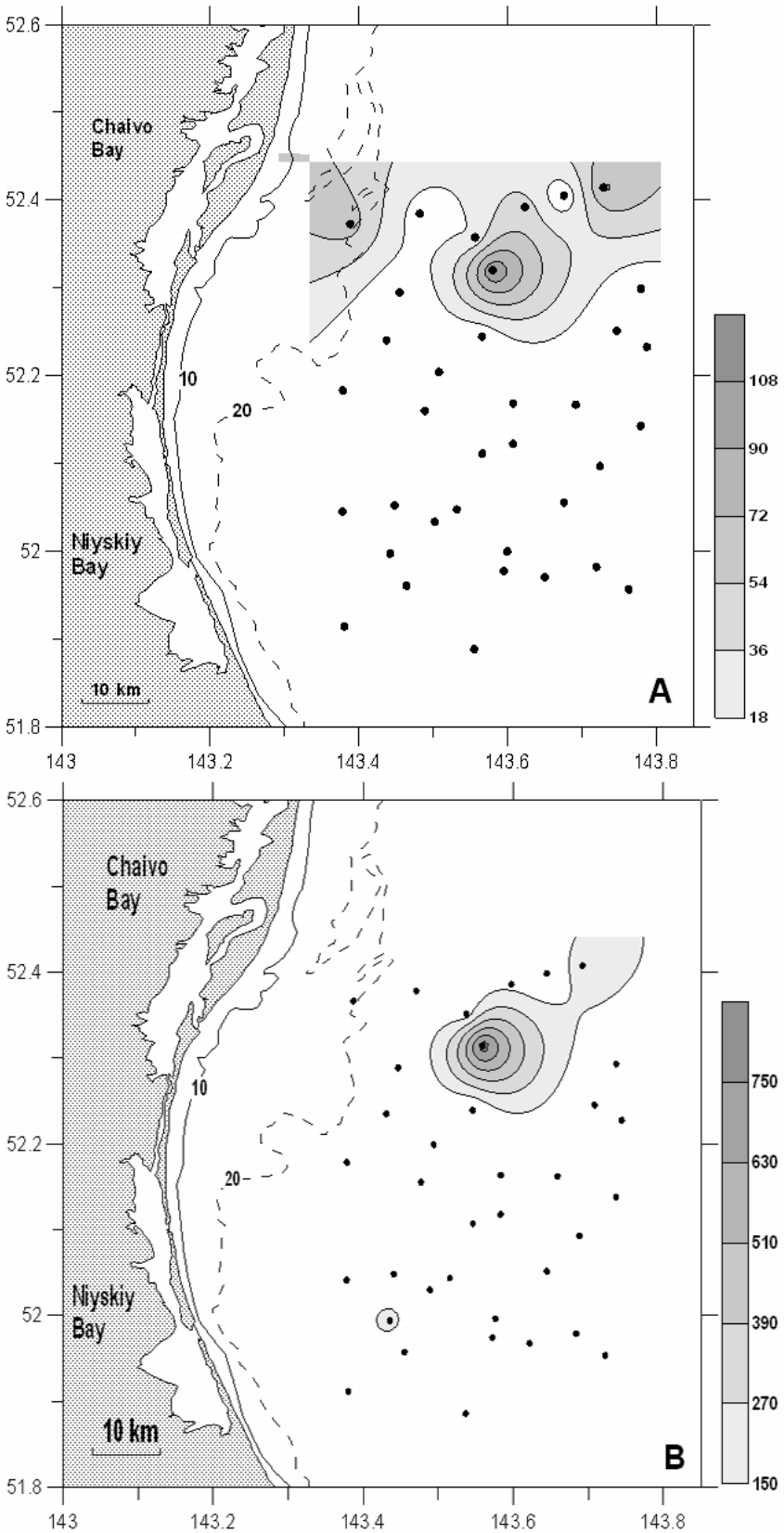


Figure A1.9. Istribution of colony density (A; spec./m^2) and biomass (B; g/ m^2) of flat sea urchins *Echinarachnius parma* in the Offshore Area.

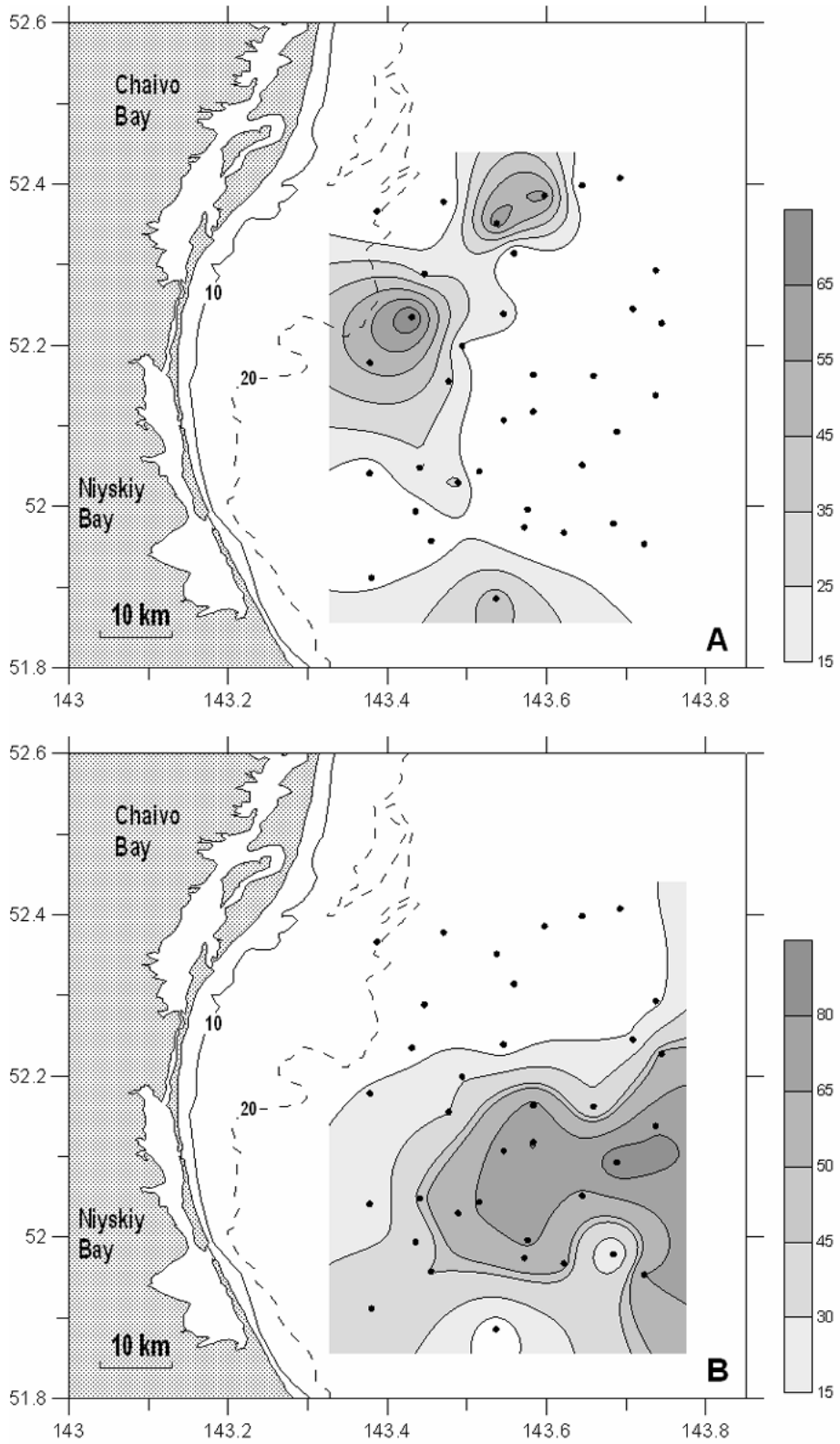


Figure A1.10. Proportion (%) of cumaceans (A) and amphipods (B) in total benthos biomass in the Offshore Area.

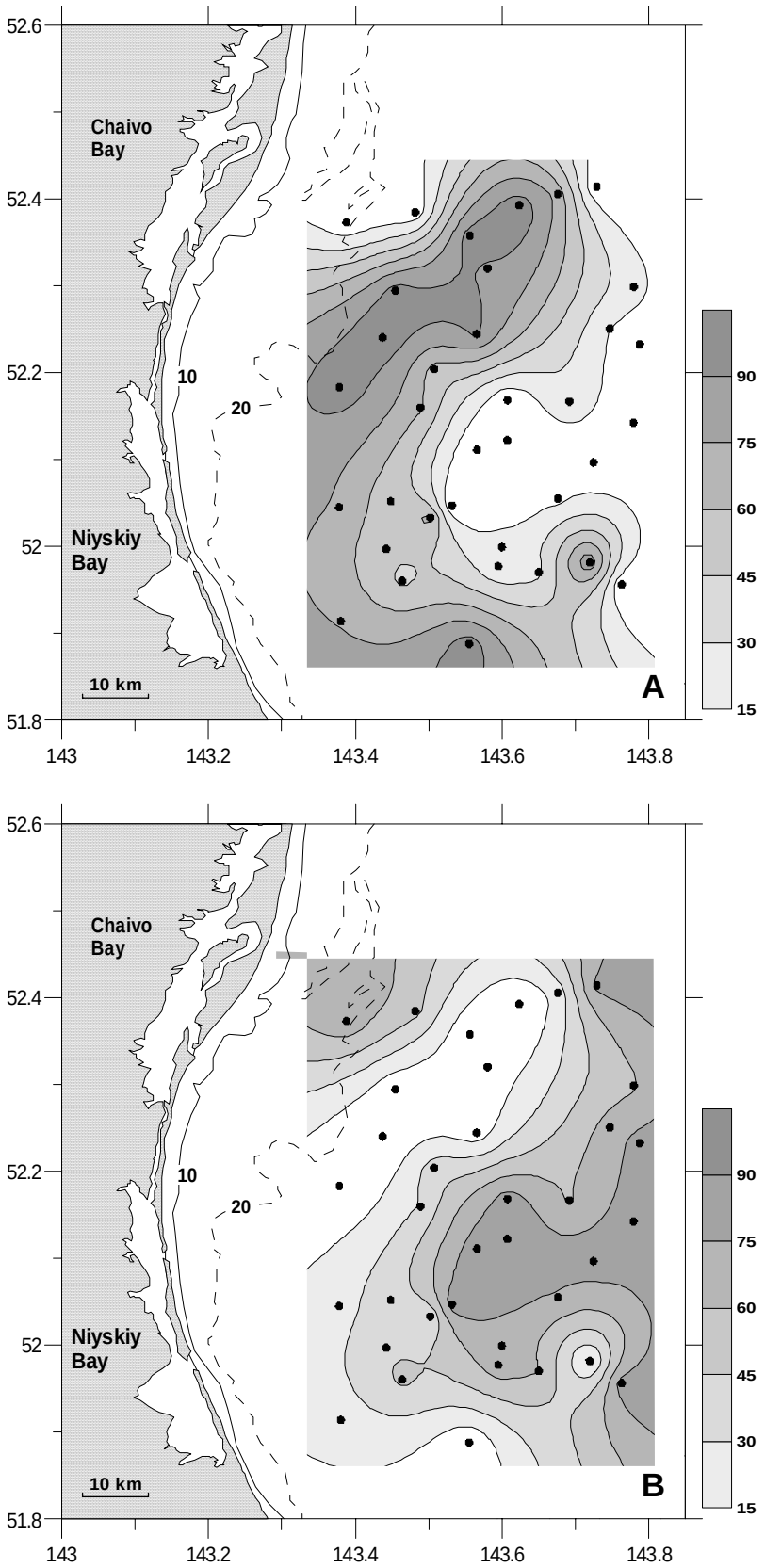


Figure A.11. Proportion (%) of cumaceans (A) and amphipods (B) in total benthos colony density in the Offshore Area.

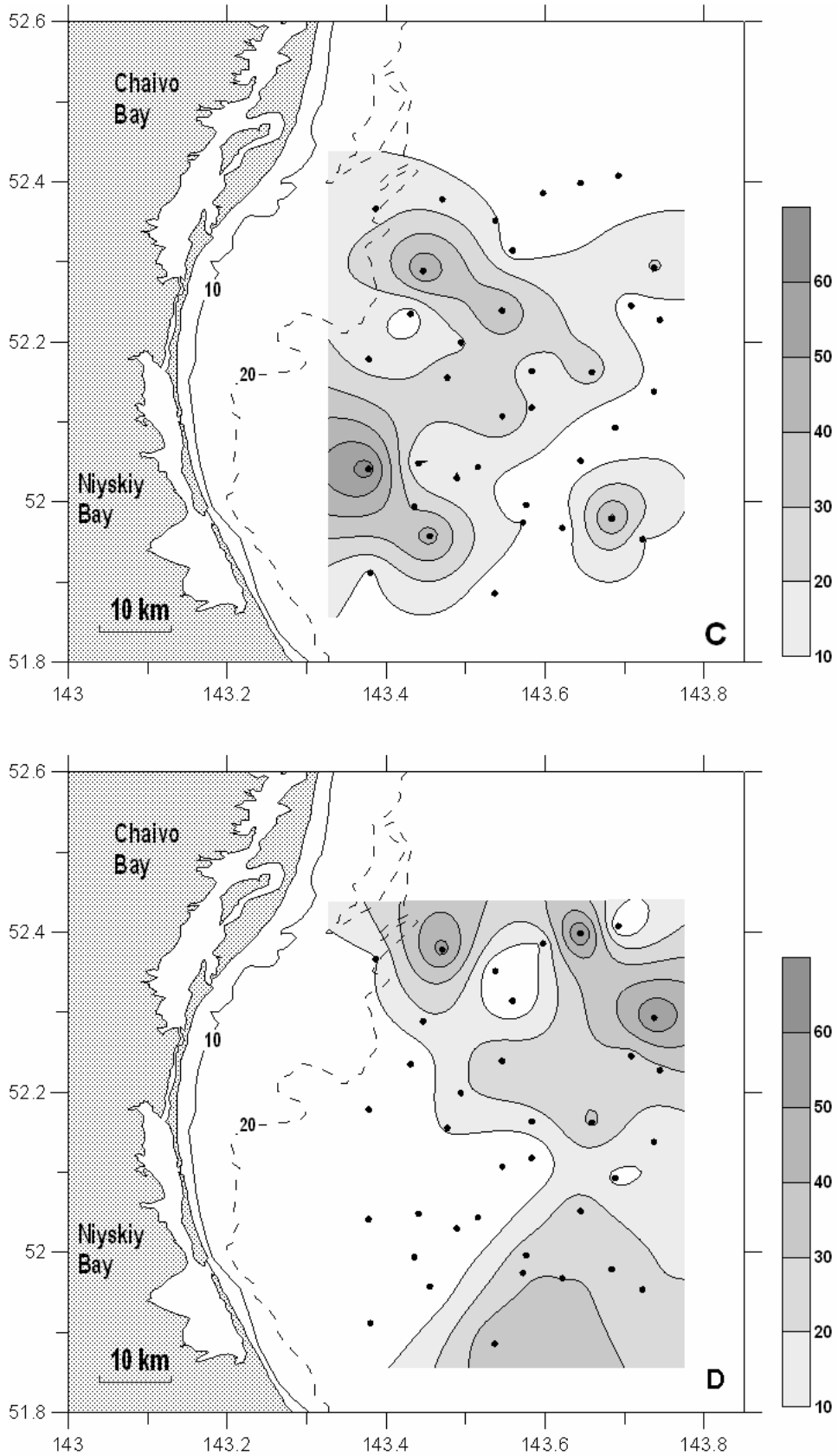


Figure A1.12. Proportion (%) of bivalve mollusks (A) and actinia amphipods (B) in total benthos biomass in the Offshore Area.

APPENDICES 2 - 6

Appendix 2. The list of sampling of expedition of the Institute of Marine Biology FEB RAS on board "*Nevelskoy*" in 2003.

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
1	1-1M	Piltun	52,8085° N	143,35533° E	52° 48,51 N	143° 21,32 E	03.08.2003	13:21	8	+12.4	+ 4.5	32.1	3
2	1-1N	Piltun	52,8795° N	143,34867° E	52° 52,77 N	143° 20,92 E	30.07.2003	9:48	11	+9.8	+4.3	32.1	3
3	1-1S	Piltun	52,725° N	143,35417° E	52° 43,50 N	143° 21,25 E	02.08.2003	8:37	12	+11.2	+4.1	32.1	3
4	1-2M	Piltun	52,9815° N	143,31817° E	52° 58,89 N	143° 19,09 E	30.07.2003	13:23	8	+12.8	+5	32.1	3
5	1-2N	Piltun	53,02317° N	143,32483° E	53° 01,39 N	143° 19,49 E	30.07.2003	14:35	13	+11.2	+4.9	32.2	3
6	1-2S	Piltun	52,9405° N	143,32833° E	52° 56,43 N	143° 19,70 E	30.07.2003	10:33	9	+8.8	+4.7	32.1	3
7	1-3M	Piltun	53,1075° N	143,288° E	53° 06,45 N	143° 17,28 E	30.07.2003	16:45	10	+12.5	+7.2	31.5	3
8	1-3MR	Piltun	53,10655 ° N	143,2911° E	53° 06,393 N	143° 17,466 E	19.09.2003	20:26	9	+16.5	+10.2	29.5	3
9	1-3N	Piltun	53,17133° N	143,28383° E	53° 10,28 N	143° 17,03 E	30.07.2003	18:14	10	+10.2	+4.4	32.2	3
10	1-3S	Piltun	53,09617° N	143,2995° E	53° 03,77 N	143° 17,97 E	30.07.2003	16:28	9	+11.8	+6.5	32	3
11	1-4M	Piltun	53,2555° N	143,25417° E	53° 15,33 N	143° 15,25 E	31.07.2003	10:47	10	+10.4	+3.1	32.2	3
12	1-4N	Piltun	53,30583° N	143,238° E	53° 18,35 N	143° 14,28 E	28.07.2003	13:32	13	+14.2	+4.3	—	3
13	1-4S	Piltun	53,22317° N	143,27383° E	53° 13,39 N	143° 16,43 E	31.07.2003	10:13	12	+10.1	+2.8	32.3	3
14	1-4SR	Piltun	53,22502° N	143,27392° E	53° 13,501 N	143° 16,435 E	19.09.2003	22:10	15	+10.1	+10.7	29.0	3
15	1-5M	Piltun	53,44483° N	143,16067° E	53° 26,69 N	143° 09,64 E	29.07.2003	10:52	12	+10.8	+2.9	32.1	3
16	1-5N	Piltun	53,4775° N	143,13016° E	53° 28,65 N	143° 07,81 E	29.07.2003	13:53	8.5	+12.4	+5	32	3
17	1-5S	Piltun	53,39383° N	143,195° E	53° 23,63 N	143° 11,70 E	29.07.2003	8:18	13	+9.8	+2.1	32.1	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
18	2-1M	Piltun	52,83433° N	143,37283° E	52° 50,06 N	143° 22,37 E	02.08.2003	15:34	13	+10.7	+4.1	32	3
19	2-1N	Piltun	52,85433° N	143,36183° E	52° 51,26 N	143° 21,71 E	02.08.2003	16:06	14	+10.4	+5.9	31.8	3
20	2-1S	Piltun	52,7715° N	143,35517° E	52° 46,29 N	143° 21,31 E	02.08.2003	10:31	11	+12.2	+3.7	32.1	3
21	2-2M	Piltun	52,97917° N	143,36183° E	52° 58,75 N	143° 21,71 E	03.08.2003	9:31	22	+10.4	+2	32.4	3
22	2-2N	Piltun	53,00433° N	143,3355° E	53° 00,26 N	143° 20,13 E	30.07.2003	14:09	13	+13.4	+4	32.1	3
23	2-2S	Piltun	52,9365° N	143,352° E	52° 56,19 N	143° 21,12 E	30.07.2003	11:02	15	+9.8	+3.9	32.1	3
24	2-3M	Piltun	53,13183° N	143,3075° E	53° 07,91 N	143° 18,45 E	30.07.2003	17:10	14	+12.1	+5.4	32.3	3
25	2-3MR	Piltun	53,13205° N	143,30773° E	53° 07,923 N	143° 18,464 E	19.09.2003	21:00	15	+11.8	+10.5	29.3	3
26	2-3N	Piltun	53,16883° N	143,2975° E	53° 10,13 N	143° 17,85 E	30.07.2003	17:48	13	+11	+4.7	32.1	3
27	2-3S	Piltun	53,0765° N	143,31667° E	53° 04,59 N	143° 19,00 E	30.07.2003	15:14	14	+11.7	+5	32.4	3
28	2-4M	Piltun	53,26467° N	143,26283° E	53°15,88 N	143°15,77 E	28.07.2003	8:40	10	+7.1	+2.0	—	3
29	2-4N	Piltun	53,2985° N	143,25517° E	53° 17,91 N	143° 15,31 E	28.07.2003	12:10	14	+15.5	+4.4	—	3
30	2-4S	Piltun	53,225° N	143,28917° E	53° 13,50 N	143° 17,35 E	31.07.2003	9:52	20	+9.2	+1.8	32.4	3
31	2-5M	Piltun	53,40667° N	143,20167° E	53° 24,40 N	143° 12,10 E	29.07.2003	9:16	20	+9.9	+0.9	32.4	3
32	2-5N	Piltun	53,48883° N	143,143° E	53° 29,33 N	143° 08,58 E	29.07.2003	14:13	15.5	+13.3	+4.2	32.1	3
33	2-5S	Piltun	53,365° N	143,235° E	53° 21,90 N	143° 14,10 E	31.07.2003	13:17	20	+10.1	+1.9	32.1	3
34	3-1M	Piltun	52,80767° N	143,38783° E	52° 48,46 N	143° 23,27 E	02.08.2003	11:12	16	+9.7	+3.1	32.1	3
35	3-1N	Piltun	52,84083° N	143,41083° E	52° 50,45 N	143° 24,65 E	02.08.2003	15:05	20	+10.4	+3.1	32.2	3
36	3-1S	Piltun	52,736° N	143,38817° E	52° 44,16 N	143° 23,29 E	02.08.2003	9:09	18	+11.8	+3.3	32.2	3
37	3-2M	Piltun	52,9565° N	143,37167° E	52° 57,39 N	143° 22,30 E	03.08.2003	9:02	23	+10.8	+2	32.3	3
38	3-2N	Piltun	53,0135° N	143,37483° E	53° 00,81 N	143° 22,49 E	03.08.2003	9:59	25	+11.5	+1.3	32.4	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
39	3-2S	Piltun	52,898° N	143,40067° E	52° 53,88 N	143° 24.04 E	30.07.2003	8:16	22	+9.1	+2.7	32.2	3
40	3-3M	Piltun	53,14033° N	143,35183° E	53° 08,42 N	143°21,11 E	03.08.2003	12:23	26	+10	+2.1	32.2	3
41	3-3N	Piltun	53,20717° N	143,34° E	53° 12,43 N	143° 20,46 E	31.07.2003	8:23	26	+9.8	+1	32.6	3
42	3-3S	Piltun	53,09933° N	143,36067° E	53° 05,96 N	143° 21,64 E	03.08.2003	13:33	23	+10.9	+1.7	32.2	3
43	3-4M	Piltun	53,25917° N	143,32283° E	53° 15,55 N	143° 19,37 E	31.07.2003	14:21	23	+9.4	+1.3	32.4	3
44	3-4N	Piltun	53,32617° N	143,28833° E	53° 19,57 N	143° 17,30 E	28.07.2003	14:29	28	+13	—	—	3
45	3-4S	Piltun	53,241° N	143,309° E	53° 14,46 N	143° 18,54 E	31.07.2003	14:45	23	+9.8	+1.6	32.4	3
46	3-5M	Piltun	53,4215° N	143,237° E	53° 25,29 N	143° 14,22 E	29.07.2003	9:49	31	+10.8	+0.4	32.7	3
47	3-5N	Piltun	53,49433° N	143,182° E	53° 29,56 N	143° 10,92 E	29.07.2003	14:44	28	+10.9	+1.9	32.4	3
48	3-5S	Piltun	53,3715° N	143,25117° E	53° 22,29 N	143° 15,07 E	31.07.2003	12:54	26	+11.7	+1.4	32.6	3
49	4-1M	Piltun	52,82917° N	143,4375° E	52° 49,75 N	143° 26,25 E	02.08.2003	14:03	23	+8.4	+2.3	32.3	3
50	4-1N	Piltun	52,85117° N	143,43283° E	52° 51,07 N	143° 25,97 E	02.08.2003	14:30	21	+9.9	+2.3	32.2	3
51	4-1S	Piltun	52,7685° N	143,424° E	52° 46,11 N	143° 25,44 E	02.08.2003	9:55	15	+12.1	+2.5	32.3	3
52	4-2M	Piltun	52,971° N	143,40067° E	52° 58,26 N	143° 24,04 E	03.08.2003	8:27	24	+12.2	+1.3	32.5	3
53	4-2N	Piltun	53,01483° N	143,416° E	53° 00,89 N	143° 24,96 E	03.08.2003	10:35	21	+11.7	+0.6	32.5	3
54	4-2S	Piltun	52,8995° N	143,42933° E	53° 53,97 N	143° 25,76 E	30.07.2003	8:57	25	+7.4	+2.3	32.2	3
55	4-3M	Piltun	53,117° N	143,3845° E	53° 07,02 N	143° 23,07 E	03.08.2003	12:59	26	+9.8	+1.7	32.1	3
56	4-3N	Piltun	53,209° N	143,36117° E	53° 12,54 N	143° 12,67 E	31.07.2003	9:00	27	+6.8	+0.7	32.6	3
57	4-3S	Piltun	53,0575° N	143,38717° E	53° 03,45 N	143° 23,23 E	03.08.2003	11:12	28	+10.9	+1	32.4	3
58	4-4M	Piltun	53,2915° N	143,34033° E	53° 17,49 N	143° 20,42 E	31.07.2003	11:35	31	+12.2	+0.6	32.7	3
59	4-4N	Piltun	53,33833° N	143,29967° E	53° 20,30 N	143° 17,98 E	28.07.2003	15:25	30	+14.7	—	—	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
60	4-4S	Piltun	53,22467° N	143,33967° E	53° 13,48 N	143° 20,38 E	31.07.2003	9:20	27	+6.8	+0.9	32.6	3
61	4-5M	Piltun	53,4295° N	143,24733° E	53° 25,71 N	143° 14,84 E	29.07.2003	10:09	32	+7.5	+0.5	32.6	3
62	4-5N	Piltun	53,50167° N	143,2135° E	53° 30,10 N	143° 12,81 E	29.07.2003	13:09	33	+11.7	+1	32.5	3
63	4-5S	Piltun	53,3865° N	143,29117° E	53° 23,19 N	143° 17,47 E	31.07.2003	12:24	33	+11.4	+0.6	32.6	3
64	B9-4	Offshore	52,3° N	143,73667° E	52° 18,00 N	143° 44,20 E	06.08.2003	12:52	45	+14.1	+9.1	31.4	3
65	B9-3	Offshore	52,2335° N	143,744° E	52° 14,01 N	143° 44,64 E	06.08.2003	14:14	48	+14.3	+9	31.6	3
66	B9-2	Offshore	52,143° N	143,8365° E	52° 08,58 N	143° 50,19 E	06.08.2003	16:29	50	+15.5	+8.3	32.1	3
67	B9-1	Offshore	51,95617° N	143,722° E	51° 57,37 N	143° 43,32 E	18.08.2003	13:25	54	+14.5	+9.3	31.5	3
68	B8-4	Offshore	52,41583° N	143,69167° E	52° 24,95 N	143° 41,50 E	16.08.2003	18:20	41	+11.4	+10.5	29.8	3
69	B8-3	Offshore	52,2515° N	143,70767° E	52° 15,09 N	143° 42,46 E	06.08.2003	13:40	43	+16.1	+9.2	31.5	3
70	B8-2	Offshore	52,09717° N	143,6875° E	52° 05,83 N	143° 41,25 E	06.08.2003	17:17	48	+12.8	+9.3	31.6	3
71	B8-1	Offshore	51,98183° N	143,68333° E	51° 58,91 N	143° 41,0 E	18.08.2003	14:05	51	+14.1	+9.4	30.8	3
72	B7-4	Offshore	52,4065° N	143,644° E	52° 24,39 N	143° 38,64 E	16.08.2003	17:40	36	+11.7	+10.2	31.2	3
73	B7-3	Offshore	52,1675° N	143,65833° E	52° 10,05 N	143° 39,50 E	06.08.2003	15:34	43	+16.5	+9.4	31.7	3
74	B7-2	Offshore	52,0555° N	143,64417° E	52° 03,33 N	143° 38,65 E	18.08.2003	16:10	45	+16.7	+8.2	31.9	3
75	B7-1	Offshore	52,99967° N	143,57583° E	51° 59,98 N	143° 34,55 E	18.09.2003	15:35	48	+15.4	+7.7	32.1	3
76	B6-4	Offshore	52,39383° N	143,597° E	52° 23,63 N	143° 35,82 E	16.08.2003	16:56	31	+12.5	+10.1	30.0	3
77	B6-3	Offshore	51,169° N	143,58283° E	51° 10,14 N	143° 34,97 E	17.08.2003	15:15	38	+13.5	+6.4	31.9	3
78	B6-2	Offshore	51,12267° N	143,58267° E	51° 07,36 N	143° 34,96 E	17.08.2003	16:18	40	+12.1	+6.4	31.9	3
79	B6-1	Offshore	51,9705° N	143,621° E	51° 58,23 N	143° 37,26 E	18.08.2003	14:55	53	+14.0	+7.7	32.1	3
80	B5-4	Offshore	52,32133° N	143,5585° E	52° 19,28 N	143° 33,51 E	16.08.2003	19:24	26	+10.1	+7.5	30.5	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
81	B5-3	Offshore	52,24533° N	143,54533° E	52° 14,72 N	143° 32,72 E	17.08.2003	10:30	32	+8.6	+6.4	31.8	3
82	B5-2	Offshore	52,11167° N	143,54567° E	52° 06,70 N	143° 32,74 E	17.08.2003	16:50	38	+10.1	+6.2	32.1	3
83	B5-1	Offshore	51,97733° N	143,5715° E	51° 58,64 N	143° 34,29 E	18.08.2003	9:10	44	+12.6	+7.3	32.1	3
84	B4-4	Offshore	52,35883° N	143,537° E	52° 21,53 N	143° 32,22 E	06.08.2003	11:10	29	+14.8	+4.5	32.3	3
85	B4-3	Offshore	52,20483° N	143,4935° E	52° 12,29 N	143° 29,61 E	17.08.2003	11:08	25	+11.8	+6.2	32.0	3
86	B4-2	Offshore	52,1475° N	143,515° E	52° 08,85 N	143° 30,90 E	17.08.2003	14:30	30	+12.8	+7.2	31.2	3
87	B4-1	Offshore	51,8878° N	143,536° E	51° 53,27 N	143° 32,16 E	18.08.2003	12:06	33	+13.0	+8.5	30.8	3
88	B3-4	Offshore	52,386° N	143,47033° E	52° 23,16 N	143° 28,22 E	16.08.2003	16:00	28	+12.5	+7.6	30.4	3
89	B3-3	Offshore	52,1605° N	143,4765° E	52° 09,63 N	143° 28,59 E	17.08.2003	13:55	30	+12.5	+6.5	3.6	3
90	B3-2	Offshore	52,0335° N	143,4885° E	52° 02,01 N	143° 29,31 E	18.08.2003	7:50	34	+12.0	+7.3	3.7	3
91	B3-1	Offshore	51,96033° N	143,4545° E	51° 57,62 N	143° 27,27 E	18.08.2003	10:15	32	+10.8	+6.9	31.8	3
92	B2-4	Offshore	52,2955° N	143,446° E	52° 17,73 N	143° 26,76 E	16.08.2003	9:00	23	+8.7	+5.8	31.4	3
93	B2-3	Offshore	52,24117° N	143,43033° E	52° 14,47 N	143° 25,82 E	17.08.2003	9:43	24	+9.4	+5.2	32.0	3
94	B2-2	Offshore	52,05217° N	143,44033° E	52° 03,13 N	143° 26,42 E	17.08.2003	17:47	30	+10.1	+8.7	30.8	3
95	B2-1	Offshore	51,99717° N	143,43483° E	51° 59,83 N	143° 26,09 E	08.09.2003	17:43	30	+12.1	+7.1	31.9	3
96	B1-4	Offshore	52,37417° N	143,3865° E	52° 22,45 N	143° 23,19 E	16.08.2003	15:14	18	+12.5	+6.0	30.7	3
97	B1-3	Offshore	52,28383° N	143,37783° E	52° 17,03 N	143° 22,67 E	17.08.2003	8:10	19	+9.8	+6.6	31.3	3
98	B1-2	Offshore	52,14517° N	143,3775° E	52° 08,71 N	143° 22,65 E	17.08.2003	13:10	24.5	+11.7	+6.5	31.8	3
99	B1-1	Offshore	51,91383° N	143,57967° E	51° 54,83 N	143° 34,78 E	18.08.2003	11:05	27	+10.8	+6.8	30.7	3
100	FP-01	Piltun	52,926833° N	143,49383° E	52° 55,61 N	143° 29,63 E	04.08.2003	21:05	29	+10.8	+2.1	32.2	3
101	FP-03	Offshore	52,214833° N	143,69833° E	52° 12,89 N	143° 41,90 E	06.08.2003	14:46	45	+15.1	+9.5	31.5	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
102	FP-06	Piltun	53,09572° N	143,32233° E	53˚05,743 N	143˚ 19,340 E	24.08.2003	10:55	16	+19.4	+13.4	-	3
103	FP-07	Piltun	53,09388° N	143,31818° E	53˚05,633 N	143˚ 19,091 E	24.08.2003	12:45	17	+23.0	+14.1	-	3
104	FP-08	Piltun	53,14492° N	143,36753° E	53˚08,695 N	143˚ 22,052 E	24.08.2003	14:05	28	+27.3	+14.1	-	3
105	FP-09	Offshore	52,22667° N	143,76667° E	52˚13,60 N	143˚ 46,00 E	27.08.2003	18:28	49	+13.0	+10.5	31.3	3
106	FP-10	Offshore	52,13212° N	143,6651° E	52˚07,927 N	143˚39,906 E	28.08.2003	14:10	47	+23.4	+12.2	-	3
107	FP-11	Offshore	52,21467° N	143,77593° E	52˚12,880 N	143˚ 46,556 E	28.08.2003	16:44	50	+18.2	+10.9	31.0	3
108	FP-12	Piltun	52,8765° N	143,34732° E	52˚52,590 N	143˚ 20,830 E	04.09.2003	18:20	13	+14.2	+11.0	-	3
109	FP-13	Offshore	52,3187° N	143,78275° E	52˚19,122 N	143˚ 46,965 E	05.09.2003	10:50	53	+16.3	+10.9	-	3
110	FP-14	Offshore	52,2237° N	143,79478° E	52˚13,422 N	143˚ 47,687 E	05.09.2003	11:35	51	+15.1	+11.1	28.7	3
111	FP-15	Offshore	52,176° N	143,7936° E	52˚10,560 N	143˚ 47,616 E	05.09.2003	14:00	52	+14.1	+11.2	28.3	3
112	FP-16	Offshore	52,174° N	143,74757° E	52˚10,440 N	143˚ 44,854 E	05.09.2003	14:40	48	+21.4	+11.9	27.5	3
113	FP-17	Offshore	52,18895° N	143,749° E	52˚11,337 N	143˚ 44,940 E	05.09.2003	15:20	48	+21.0	+11.9	27.9	3
114	FP-18	Offshore	52,2289° N	143,78887° E	52˚13,734 N	143˚ 47,332 E	05.09.2003	17:50	54	+18.5	+11.1	29.1	3
115	FP-19	Offshore	52,15472° N	143,67022° E	52˚09,283 N	143˚ 40,213 E	06.09.2003	13:40	47	+17.1	+12.4	28.2	3
116	FP-20	Offshore	52,15468° N	143,70808° E	52˚09,281 N	143˚ 42,485 E	06.09.2003	14:50	48	+18.3	+11.9	28.3	3
117	FP-21	Offshore	52,10167° N	143,58967° E	52˚06,100 N	143˚ 35,380 E	06.09.2003	18:35	41	+12.8	+11.9	28.3	3
118	FP-22	Offshore	52,15048° N	143,78635° E	52˚09,029 N	143˚ 47,181 E	07.09.2003	10:45	54	+15.8	+10.5	29.1	3
119	FP-23	Offshore	52,19545° N	143,80035° E	52˚11,727 N	143˚ 48,021 E	07.09.2003	12:00	52	+17.6	+10.6	29.6	3
120	FP-24	Offshore	52,20407° N	143,78863° E	52˚12,244 N	143˚ 47,318 E	07.09.2003	13:00	51	+19.7	+10.7	29.2	3
121	FP-25	Offshore	52,22497° N	143,81865° E	52˚13,498 N	143˚ 49,119 E	07.09.2003	14:00	54	+19.3	+11.1	29.2	3
122	FP-26	Offshore	52,2409° N	143,84533° E	52˚14,454 N	143˚ 50,720 E	07.09.2003	14:45	55	+20.0	+11.0	29.4	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
123	FP-27	Offshore	52,263217° N	143,88833° E	52˚15,793 N	143˚ 53,300 E	07.09.2003	15:20	62	+23.0	+11.9	29.8	3
124	FP-28	Offshore	52,2895° N	143,8075° E	52˚17,370 N	143˚ 48,450 E	08.09.2003	13:30	53	+21.0	+12.1	29.0	3
125	FP-29	Offshore	52,29407° N	143,82708° E	52˚17,644 N	143˚ 49,625 E	08.09.2003	14:30	55	+21.5	+11.3	29.8	3
126	FP-30	Offshore	52,30293° N	143,84517° E	52˚18,176 N	143˚ 50,710 E	08.09.2003	15:30	59	+18.0	+12.0	29.1	3
127	FP-31	Offshore	52.29228° N	143,88892° E	52˚17,537 N	143˚ 53,335 E	08.09.2003	16:30	64	+21.4	+12.0	29.5	3
128	FP-32	Offshore	52,31405° N	143,88183° E	52˚18,843 N	143˚ 52,910 E	08.09.2003	17:10	63	+18.3	+12.0	29.5	3
129	FP-33	Offshore	52,28765° N	143,86745° E	52˚17,259 N	143˚ 52,047 E	08.09.2003	18:00	61	+19.0	+12.5	28.7	3
130	FP-34	Offshore	52,15385° N	143,70903° E	52˚09,231 N	143˚ 42,542 E	10.09.2003	9:30	53	+16.3	+12.1	27.6	3
131	FP-35	Offshore	52,1536° N	143,72027° E	52˚09,216 N	143˚ 43,216 E	10.09.2003	10:40	53	+16.5	+12.2	27.7	3
132	FP-36	Offshore	52,15798° N	143,72093° E	52˚09,479 N	143˚ 43,256 E	10.09.2003	11:20	53	+14.4	+12.2	27.6	3
133	FP-37	Offshore	52,16373° N	143,71908° E	52˚09,824 N	143˚ 43,145 E	10.09.2003	13:30	53.6	+15.2	+12.4	27.9	3
134	FP-38	Offshore	51,99195° N	143,58265° E	51˚59,517 N	143˚ 34,959 E	13.09.2003	9:30	48	+15.0	+10.4	29.5	3
135	FP-39	Offshore	51,99393° N	143,58092° E	51˚59,636 N	143˚ 34,855 E	13.09.2003	10:45	47	+16.5	+10.5	29.4	3
136	FP-40	Offshore	51,96717° N	143,56082° E	51˚58,030 N	143˚ 33,649 E	13.09.2003	11:40	46	+18.0	+10.2	29.3	3
137	FP-41	Offshore	51,97225° N	143,56997° E	51˚58,335 N	143˚ 32,003 E	13.09.2003	12:30	44	+18.3	+10.7	29.3	3
138	FP-42	Offshore	51,929383° N	143,56997° E	51˚55,763 N	143˚ 34,198 E	13.09.2003	13:35	42	+15.1	+11.1	29.4	3
139	FP-43	Offshore	51,952117° N	143,55658° E	51˚57,127 N	143˚ 33,395 E	13.09.2003	14:20	43	+15.7	+11.1	29.3	3
140	FP-44	Offshore	51,936517° N	143,54512° E	51˚56,191 N	143˚ 32,707 E	13.09.2003	15:10	45	+15.8	+11.0	29.4	3
141	FP-45	Offshore	51,9163° N	143,53367° E	51˚54,978 N	143˚ 32,020 E	13.09.2003	16:00	42	+14.3	+11.0	29.3	3
142	FP-46	Offshore	52,04277° N	143,59532° E	52˚02,566 N	143˚ 35,719 E	13.09.2003	16:50	50	+15.2	+10.5	29.5	3
143	FP-47	Offshore	52,06777° N	143,60363° E	52˚04,066 N	143˚ 36,218 E	13.09.2003	18:10	46	+15.4	+10.8	29.5	3

Item	Station	Area	Coordinates (decimal form)		Coordinates (canonical form)		Date	Tame	Depth (m)	Temperature		Salinity	Namber of grab samples
			Latitude	Longitude	Latitude	Longitude				Air	Sea Surface		
144	FP-48	Piltun	53,25568° N	143,27737° E	53˚15,341 N	143˚ 16,642 E	18.09.2003	14:40	17	+13.2	+10.2	29.2	3
145	FP-49	Piltun	53,27358° N	143,29183° E	53˚16,415 N	143˚ 17,510 E	18.09.2003	15:20	25	+12.6	+10.8	29.0	3
146	FP-50	Piltun	53,28328° N	143,25035° E	53˚ 16,997 N	143˚ 15,021 E	18.09.2003	17:20	17	+12.3	+10.0	29.4	3
147	FP-51	Piltun	53,345° N	143,22467° E	53˚20,700 N	143˚ 13,480 E	18.09.2003	18:20	14	+12.5	+10.4	29.1	3
148	FP-52	Piltun	52,6999° N	143,36307° E	52˚41,994 N	143˚ 21,784 E	19.09.2003	15:00	14	+16.9	+8.3	30.6	3
149	FP-53	Piltun	52,68892° N	143,37275° E	52˚41,335 N	143˚ 22,365 E	19.09.2003	15:50	17	+17.0	+8.2	30.5	3
150	FP-54	Piltun	52,67972° N	143,36487° E	52˚40,783 N	143˚ 21,892 E	19.09.2003	16:45	16	+17.1	+8.3	30.6	3

Appendix 3. Granulometric composition of bottom sediments.

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
1	1	1-1M	Piltun Area	143,349582	52,83249	15	14	2,40	0,00	0,00	0,00	0,20	12,90	**78,70**	3,60	2,20	0,00	**Sf**
2	2	1-1N	Piltun Area	143,349259	52,87929	12	13	0,00	0,00	0,10	0,05	12,10	**85,87**	1,88	0,00	0,00	0,00	Sm
3	3	1-1S	Piltun Area	143,352704	52,73691	11	14	0,85	0,00	0,22	1,56	5,04	**51,38**	38,02	1,07	1,86	0,00	Sm
4	4	1-2M	Piltun Area	143,335835	52,96516	14	12	0,40	0,00	2,40	12,10	22,60	**48,10**	11,40	0,10	2,50	0,40	Sm
5	5	1-2N	Piltun Area	143,324451	53,02358	14	13	1,30	0,00	0,00	8,30	8,00	**55,80**	25,20	0,20	0,60	0,60	Sm
6	6	1-2S	Piltun Area	143,345854	52,89577	12	13	0,00	0,00	3,59	7,24	6,49	40,85	40,89	0,61	0,33	0,00	Sf+Sm
7	7	1-3M	Piltun Area	143,293593	53,15153	15	14	0,00	0,00	1,50	10,40	9,70	31,80	44,30	1,20	1,10	0,00	Sf+Sm
8	8	1-3N	Piltun Area	143,283996	53,17189	14	13	0,00	0,00	0,99	10,85	26,18	**53,15**	6,94	1,19	0,70	0,00	Sm
9	9	1-3S	Piltun Area	143,300262	53,09636	11	12	0,70	0,00	0,10	4,10	8,10	**65,80**	19,90	0,60	0,70	0,00	Sm
10	10	1-4M	Piltun Area	143,254526	53,27328	15	14	0,00	0,00	0,00	2,11	0,36	3,32	**94,21**	0,00	0,00	0,00	Sf
11	11	1-4N	Piltun Area	143,213048	53,34135	15	14	0,60	0,00	0,00	0,50	2,90	**60,90**	33,70	0,20	0,60	0,60	Sm
12	12	1-4S	Piltun Area	143,278827	53,21466	17	14	0,42	0,03	1,27	9,58	13,95	**41,00**	32,61	0,31	0,53	0,30	Sm+Sf
13	13	1-5M	Piltun Area	143,164338	53,43991	17	14	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	Peb
14	14	1-5N	Piltun Area	143,12566	53,49365	12	15	0,40	0,00	0,20	0,60	0,30	5,20	**91,30**	0,40	0,30	1,30	Sf
15	15	1-5S	Piltun Area	143,20306	53,36265	15	14	0,00	0,00	0,40	2,60	1,30	15,80	**77,90**	0,30	1,70	0,00	Sf
16	16	2-1M	Piltun Area	143,360566	52,83161	17	14	1,89	0,00	0,59	3,37	5,40	**47,38**	37,81	1,70	1,86	0,00	Sm+Sf
17	17	2-1N	Piltun Area	143,362171	52,87348	14	14	0,00	0,00	0,80	8,10	11,80	**58,80**	19,10	0,80	0,60	0,00	Sm
18	18	2-1S	Piltun Area	143,35797	52,74227	11	15	0,00	0,00	0,00	8,8	16,5	**67,26**	6,94	0,5	0,00	0,00	Sm
19	19	2-2M	Piltun Area	143,346834	52,98044	17	14	0,00	0,00	0,03	0,10	0,31	10,07	**87,02**	2,11	0,36	0,00	Sf
20	20	2-2N	Piltun Area	143,346336	53,01548	16	14	0,00	0,00	0,10	0,05	0,10	5,52	**92,13**	1,43	0,67	0,00	Sf
21	21	2-2S	Piltun Area	143,354685	52,93359	17	14	0,00	0,00	0,00	0,50	0,66	42,32	**55,19**	0,53	0,80	0,00	Sf+Sm
22	22	2-3M	Piltun Area	143,320261	53,12546	18	10	0,00	0,00	0,05	0,06	0,27	35,57	**62,74**	0,87	0,44	0,00	Sf+Sm
23	23	2-3N	Piltun Area	143,31292	53,18217	21	10	0,17	0,00	1,27	6,73	9,58	24,30	**55,55**	1,45	0,80	0,15	Sf
24	24	2-3S	Piltun Area	143,330709	53,09645	22	10	0,00	0,00	0,00	0,09	0,31	19,46	**79,41**	0,64	0,09	0,00	Sf
25	25	2-4M	Piltun Area	143,262627	53,27529	20	10	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	Peb
26	26	2-4N	Piltun Area	143,256871	53,31691	22	10	0,90	0,00	0,00	1,40	2,10	11,00	**81,80**	0,20	0,80	1,80	Sf
27	27	2-4S	Piltun Area	143,286881	53,24888	21	10	1,10	2,90	11,50	22,60	10,20	8,90	41,50	0,20	0,60	0,50	Sf+Grf
28	28	2-5M	Piltun Area	143,19071	53,45115	25	11	0,00	0,00	0,00	0,36	7,14	**51,12**	40,84	0,54	0,00	0,00	Sm
29	29	2-5N	Piltun Area	143,165888	53,4683	13	11	0,40	0,00	9,00	38,30	29,30	21,20	1,40	0,10	0,30	0,00	Sc
30	30	2-5S	Piltun Area	143,22899	53,37565	21	11	0,40	0,00	0,00	0,70	1,40	22,90	**73,30**	0,40	0,90	0,00	Sf
31	31	3-1M	Piltun Area	143,404989	52,785158	18	11	0,65	0,00	22,20	24,65	32,68	11,29	7,69	0,48	0,36	0,00	Sm+Sc

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
32	32	3-1N	Piltun Area	143,383669	52,852514	18	11	0,00	0,00	3,70	14,10	26,40	46,50	8,20	0,40	0,70	0,00	Sm
33	33	3-1S	Piltun Area	143,386107	52,741740	17	11	0,80	0,00	0,80	3,20	4,40	**67,20**	22,20	0,60	0,80	0,00	Sm
34	34	3-2M	Piltun Area	143,380663	52,955727	23	11	0,70	0,00	0,00	0,40	0,30	4,20	**93,00**	0,40	0,30	0,70	Sf
35	35	3-2N	Piltun Area	143,380929	53,028266	26	11	2,07	0,00	17,82	26,15	34,24	12,18	3,15	2,23	2,16	0,00	Sc+Grf
36	36	3-2S	Piltun Area	143,394717	52,902879	20	11	0,00	0,00	0,00	3,10	6,00	**55,60**	34,20	1,10	0,00	0,00	Sm
37	37	3-3M	Piltun Area	143,342961	53,122872	21	11	0,00	0,00	0,00	2,80	4,10	**61,10**	30,30	0,80	0,90	0,00	Sm
38	38	3-3N	Piltun Area	143,321665	53,183351	25	11	0,00	0,00	0,00	0,13	1,69	36,85	**60,42**	0,91	0,00	0,00	Sf+Sm
39	39	3-3S	Piltun Area	143,366044	53,097132	27	12	0,00	0,00	10,07	6,11	10,11	24,02	49,21	0,30	0,18	0,00	Sf
40	40	3-4M	Piltun Area	143,301507	53,287312	25	12	0,00	0,00	0,70	1,20	2,01	11,94	**82,19**	0,94	1,02	0,00	Sf
41	41	3-4N	Piltun Area	143,290428	53,314381	27	11	0,90	0,00	0,20	0,30	0,30	7,90	**89,00**	0,50	0,90	0,00	Sm
42	42	3-4S	Piltun Area	143,331526	53,211715	29	11	0,00	0,00	0,00	0,30	0,40	11,60	**84,70**	0,30	2,70	0,00	Sf
43	43	3-5M	Piltun Area	143,218360	53,419300	25	11	0,00	0,00	0,00	1,97	2,43	6,66	**87,19**	1,75	0,00	0,00	Sf
44	44	3-5N	Piltun Area	143,183251	53,485408	28	11	0,68	0,00	0,00	0,40	0,19	11,90	**84,70**	1,46	0,67	0,00	Sf
45	45	3-5S	Piltun Area	143,248712	53,365021	25	10	0,40	0,00	0,80	2,20	2,00	7,40	**85,70**	0,20	0,90	0,40	Sf
46	46	4-1M	Piltun Area	143,418357	52,824279	19	11	0,88	0,00	1,27	1,03	0,42	15,16	**80,13**	0,71	0,40	0,00	Sf
47	47	4-1N	Piltun Area	143,421778	52,848146	22	11	0,57	0,00	0,00	0,00	1,00	22,92	**74,34**	0,35	0,82	0,00	Sf
48	48	4-1S	Piltun Area	143,417931	52,739054	23	11	0,00	3,04	2,16	2,06	12,18	33,18	42,18	3,04	2,16	0,00	Sf+Sm
49	49	4-2M	Piltun Area	143,418292	52,945652	24	12	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	Peb
50	50	4-2N	Piltun Area	143,393035	53,032761	24	12	0,60	0,00	0,13	0,47	0,33	3,97	**92,40**	0,83	0,40	0,87	Sf
51	51	4-2S	Piltun Area	143,411170	52,937506	26	12	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	Peb
52	52	4-3M	Piltun Area	143,375201	53,103360	23	12	1,55	0,00	0,00	0,04	0,19	11,90	**84,00**	1,46	0,67	0,19	Sf
53	53	4-3N	Piltun Area	143,368296	53,193241	28	12	0,80	0,00	0,00	0,00	0,10	7,20	**82,30**	3,00	6,60	0,00	Sf
54	54	4-3S	Piltun Area	143,371336	53,089591	26	12	0,00	0,00	0,14	0,16	0,22	20,45	**78,35**	0,52	0,16	0,00	Sf
55	55	4-4M	Piltun Area	143,319393	53,299786	28	12	0,89	0,28	2,49	6,21	8,10	36,93	41,77	1,41	1,56	0,36	Sf+Sm
56	56	4-4N	Piltun Area	143,313809	53,303104	28	11	1,31	0,00	0,00	0,11	0,72	44,50	**50,45**	0,74	0,69	1,48	Sf+Sm
57	57	4-4S	Piltun Area	143,325376	53,255766	24	11	0,70	0,00	0,00	5,80	0,80	9,90	**81,40**	0,60	0,80	0,00	Sf
58	58	4-5M	Piltun Area	143,251726	53,440361	32	11	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	Peb
59	59	4-5N	Piltun Area	143,223846	53,456644	30	11	0,00	0,00	0,42	0,14	0,11	11,94	**85,20**	1,62	0,57	0,00	Sf
60	60	4-5S	Piltun Area	143,289257	53,359529	35	10	2,56	10,22	8,13	12,14	22,13	19,68	20,32	4,82	0,00	0,00	Scf
61	1	5	Intermediate	143,454816	52,500345	22	11	2,16	5,34	9,12	5,45	16,21	**50,68**	7,43	3,48	0,13	0,00	Grf
62	2	1--1	Intermediate	143,355249	52,683550	11	10	0,16	27,84	6,84	**50,35**	1,71	0,22	12,18	0,18	0,52	0,00	Grf
63	3	1--2	Intermediate	143,335216	52,607569	8	11	0,00	1,58	0,80	0,16	0,00	13,50	**83,55**	0,41	0,00	0,00	Sf
64	4	1--3	Intermediate	143,333307	52,427297	14	11	0,00	0,00	0,13	0,18	1,02	15,27	**82,77**	0,62	0,01	0,00	Sf
65	5	2--1	Intermediate	143,368555	52,658197	15	9	1,00	0,00	0,00	0,00	0,20	19,10	**77,50**	0,40	0,90	0,90	Sf
66	6	2--2	Intermediate	143,348891	52,538230	15	9	0,00	0,00	0,00	0,60	1,40	15,60	**80,40**	1,00	1,00	0,00	Sf

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
67	7	2--3	Intermediate	143,348190	52,448530	17	11	0,00	1,90	2,50	4,80	2,50	17,20	**69,80**	0,30	1,00	0,00	Sf
68	8	3--1	Intermediate	143,413926	52,694193	23	13	1,70	0,00	0,00	5,30	5,50	**54,10**	31,80	0,60	0,70	0,30	Sm
69	9	3--2	Intermediate	143,401561	52,560787	23	10	0,60	5,00	12,14	14,30	26,42	23,64	17,20	0,10	0,60	0,00	Sm
70	10	3--3	Intermediate	143,367269	52,420093	19	9	0,00	0,00	0,95	4,71	8,13	37,86	45,16	1,91	1,28	0,00	Sf+Sm
71	11	4--1	Intermediate	143,421274	52,664900	19	12	2,60	0,00	0,00	0,40	0,30	32,00	**63,00**	0,10	0,80	0,80	Sf
72	12	4--2	Intermediate	143,409372	52,555511	21	13	0,00	0,00	10,50	19,90	17,60	37,00	13,80	0,80	0,40	0,00	Sm
73	13	4--3	Intermediate	143,406577	52,448866	16	11	0,00	0,00	0,00	2,00	13,90	**60,50**	22,30	0,40	0,90	0,00	Sm
74	1	B1-1	Offshore	143,365554	51,986309	29	8	0,40	0,00	0,00	1,30	2,50	**64,10**	30,00	0,30	0,50	0,90	Sm
75	2	B1-2	Offshore	143,394707	52,029020	26	12	0,00	0,00	0,00	11,74	11,51	32,13	42,76	1,86	0,00	0,00	Sf+Sm
76	3	B1-3	Offshore	143,396640	52,163170	25	10	0,00	0,00	0,00	0,64	22,90	40,53	31,93	3,35	0,65	0,00	Sm+Sf
77	4	B1-4	Offshore	143,361703	52,305157	20	9	0,60	0,00	1,20	8,80	9,30	37,50	41,80	0,10	0,70	0,00	Sf+Sm
78	5	B2-1	Offshore	143,424941	51,969138	30	9	0,90	0,00	0,00	0,50	4,00	**66,50**	26,80	0,40	0,90	0,00	Sm
79	6	B2-2	Offshore	143,428029	52,068464	30	11	0,00	0,00	5,09	26,51	19,40	44,42	4,44	0,14	0,00	0,00	Sm+Grf
80	7	B2-3	Offshore	143,435902	52,276554	24	11	2,20	1,02	0,13	0,09	20,49	27,59	46,91	0,82	0,46	0,29	Sf
81	8	B2-4	Offshore	143,418398	52,328226	27	9	0,93	0,00	0,58	0,23	10,23	24,73	**57,85**	1,04	4,41	0,00	Sf
82	9	B3-1	Offshore	143,451520	51,959954	31	9	1,13	0,00	0,57	8,82	26,10	41,24	19,30	1,03	1,36	0,45	Sm+Sc
83	10	B3-2	Offshore	143,474577	52,085328	33	11	0,00	0,00	0,00	2,10	5,20	**78,40**	13,30	0,40	0,60	0,00	Sm
84	11	B3-3	Offshore	143,485428	52,235477	27	13	0,00	0,00	0,00	0,13	20,63	35,29	40,74	3,21	0,00	0,00	Sf+Sm
85	12	B3-4	Offshore	143,477876	52,385795	27	10	0,00	1,00	9,70	14,70	14,90	41,30	16,80	1,60	0,00	0,00	Sm
86	13	B4-1	Offshore	143,499987	51,914824	35	9	0,50	0,00	0,30	0,60	1,40	11,20	**84,20**	0,30	0,50	1,00	Sf
87	14	B4-2	Offshore	143,497120	52,034420	31	12	0,00	0,00	0,57	0,36	0,89	6,41	**85,97**	3,44	2,36	0,00	Sf
88	15	B4-3	Offshore	143,531857	52,153591	33	13	0,00	0,00	3,60	6,20	5,50	**48,50**	32,80	1,30	2,10	0,00	Sm
89	16	B4-4	Offshore	143,528610	52,318687	32	9	0,00	0,00	0,08	0,37	2,96	44,83	**51,47**	0,24	0,05	0,00	Sf+Sm
90	17	B5-1	Offshore	143,561441	51,960239	43	10	0,50	0,00	4,70	11,10	25,20	26,00	31,10	0,10	0,40	0,90	Sm
91	18	B5-2	Offshore	143,579712	52,144540	40	11	1,80	0,00	3,60	6,80	4,50	24,40	**55,20**	1,70	1,00	1,00	Sf
92	19	B5-3	Offshore	143,565492	52,154761	38	10	0,00	0,00	3,90	24,20	28,40	38,20	4,10	0,80	0,40	0,00	Sm+Sc
93	20	B5-4	Offshore	143,566316	52,417602	30	10	0,00	1,70	5,31	**54,30**	14,88	20,80	1,15	0,73	1,13	0,00	Grf
94	21	B6-1	Offshore	143,591770	51,939664	46	7	0,56	0,00	9,06	5,95	4,58	12,86	**65,57**	0,88	0,54	0,00	Sf
95	22	B6-2	Offshore	143,604940	52,061357	43	11	0,60	0,00	0,70	1,80	1,60	9,20	**84,40**	0,50	0,60	0,60	Sf
96	23	B6-3	Offshore	143,617488	52,182485	41	10	0,60	0,00	0,90	10,40	25,40	**51,50**	10,10	0,50	0,60	0,00	Sm
97	24	B6-4	Offshore	143,601473	52,402975	34	9	4,80	0,00	0,00	1,20	1,10	15,90	**69,10**	4,30	2,40	1,20	Sf
98	25	B7-1	Offshore	143,635301	51,943814	51	11	0,00	0,00	0,00	0,11	0,27	35,57	**62,74**	0,87	0,44	0,00	Sf+Sm
99	26	B7-2	Offshore	143,646280	52,135429	43	11	0,00	0,00	0,17	0,98	1,62	23,22	**72,60**	0,86	0,55	0,00	Sf
100	27	B7-3	Offshore	143,644337	52,231330	39	11	0,00	0,00	0,00	0,05	0,66	42,37	**56,31**	0,53	0,08	0,00	Sf
101	28	B7-4	Offshore	143,629807	52,413373	34	12	0,00	0,00	0,04	0,51	1,87	44,03	**53,25**	0,26	0,04	0,00	Sf

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
102	29	B8-1	Offshore	143,674903	51,891577	55	12	1,00	0,00	0,00	0,00	0,50	**50,10**	47,40	0,10	0,90	0,00	Sm
103	30	B8-2	Offshore	143,700379	52,078588	50	11	0,00	0,00	0,26	0,17	0,56	25,18	**73,00**	0,66	0,17	0,00	Sf
104	31	B8-3	Offshore	143,679377	52,245054	41	10	0,00	0,00	0,00	0,69	2,78	20,47	**73,95**	2,11	0,00	0,00	Sf
105	32	B8-4	Offshore	143,672226	52,383069	40	12	0,50	0,00	1,20	2,50	12,00	**65,60**	16,90	0,10	0,60	0,60	Sm
106	33	B9-1	Offshore	143,743787	51,903031	60	10	0,00	0,00	0,39	0,31	0,27	3,36	**92,37**	1,93	1,37	0,00	Sm
107	34	B9-2	Offshore	143,713314	52,126962	48	9	0,60	0,00	0,60	4,50	14,10	**66,70**	12,60	0,30	0,60	0,00	Sm
108	35	B9-3	Offshore	143,746424	52,201253	48	8	0,00	0,00	0,00	0,30	0,70	3,70	**91,70**	1,60	2,00	0,00	Sf
109	36	B9-4	Offshore	143,753558	52,349330	43	11	0,00	0,00	0,00	0,70	1,00	22,90	**74,10**	0,40	0,90	0,00	Sf
110	1	C-1	Control Area	143,566841	52,700232	24	11	0,00	0,00	4,30	45,55	32,12	12,60	3,19	2,24	0,00	0,00	Grf+Sc
111	2	C1M	Control Area	143,569464	52,516928	33	11	0,70	0,00	2,60	6,10	14,90	**53,90**	20,20	0,20	0,70	0,70	Sm
112	3	C1N	Control Area	143,544581	52,443179	32	12	0,00	0,00	0,80	6,30	4,00	**59,50**	27,50	1,30	0,60	0,00	Sm
113	4	C1S	Control Area	143,583809	52,760651	32	12	0,00	25,35	**58,75**	14,85	1,05	0,00	0,00	0,00	0,00	0,00	Grc
114	5	C-2	Control Area	143,569464	52,516928	33	11	0,69	0,00	0,08	2,37	**66,06**	28,18	1,43	0,70	0,49	0,00	Sc+Sm
115	6	C2S	Control Area	143,573136	52,895487	33	10	0,00	2,60	20,10	18,30	13,50	32,90	11,40	0,80	0,40	0,00	Sm
116	7	C-3	Control Area	143,544581	52,443179	30	12	0,58	0,71	1,73	4,83	11,96	**50,00**	29,18	0,32	0,67	0,02	Sm
117	8	C4N	Control Area	143,461027	53,342254	53	10	0,00	0,00	0,05	0,07	0,43	32,56	**65,94**	0,65	0,30	0,00	Sf
118	9	C5M	Control Area	143,393322	53,432158	53	9	1,00	0,00	0,50	11,90	30,60	**51,70**	3,40	0,30	0,30	0,30	Sm
119	10	C5N	Control Area	143,365562	53,477972	55	8	0,00	0,00	0,30	8,00	4,20	**50,50**	34,90	1,00	1,10	0,00	Sm
120	11	C5S	Control Area	143,423979	53,375884	51	11	0,00	0,00	15,45	**50,12**	32,18	1,49	0,76	0,00	0,00	0,00	Grc
121	12	Cb1	Control Area	143,236006	51,982942	21	11	0,00	0,00	0,00	0,33	2,55	**56,60**	39,33	0,70	0,49	0,00	Sm
122	13	Cb2	Control Area	143,218797	52,085791	23	11	0,60	0,00	3,00	6,40	20,50	**61,10**	6,90	0,10	0,70	0,70	Sm
123	14	Cb3	Control Area	143,193971	52,155156	17	12	0,00	0,00	1,42	2,40	5,64	**64,12**	26,17	0,20	0,05	0,00	Sm
124	15	Cb4	Control Area	143,280744	52,372778	10	12	0,00	0,00	0,40	3,20	18,30	**58,80**	17,80	0,60	0,90	0,00	Sm

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
125	1	AS-01	Feeding Point	143,23029	51,92679	12	11	0,00	0,00	0,00	**58,51**	3,51	35,90	0,78	0,60	0,70	0,00	Gr+Sm
126	2	B6-2-2	Feeding Point	143,59608	52,11298	41	10	0,60	0,30	4,40	18,50	19,60	45,50	10,10	0,20	0,30	0,50	Sm
127	3	FP-01	Feeding Point	143,61811	52,13082	45	12	0,30	0,00	0,10	2,70	32,60	**51,20**	11,90	0,20	0,70	0,30	Sm+Sc
128	4	FP-02	Feeding Point	143,68641	52,41362	44	12	0,00	0,00	3,60	8,90	19,10	**53,60**	12,50	2,30	0,00	0,00	Sm
129	5	FP-03	Feeding Point	143,55287	52,14435	38	12	0,00	0,00	4,80	7,00	23,40	**56,00**	6,60	1,60	0,60	0,00	Sm+Sc
130	6	FP-04	Feeding Point	143,62700	52,20267	40	11	0,00	0,00	0,70	4,00	24,10	**61,50**	7,30	0,70	1,70	0,00	Sm+Sc
131	7	FP-05	Feeding Point	143,56081	52,15897	40	11	0,00	0,00	0,17	0,17	**53,84**	26,83	15,21	3,48	0,30	0,00	Sc
132	8	FP-06	Feeding Point	143,37305	52,17432	38	11	0,00	0,00	6,40	6,80	10,50	38,40	36,50	0,80	0,60	0,00	Sm+Sf
133	9	FP-07	Feeding Point	143,63261	52,18657	41	11	0,90	0,00	0,00	0,00	0,11	31,14	**66,27**	0,58	0,53	0,47	Sf
134	10	FP-08	Feeding Point	143,36901	52,69785	14	10	0,00	0,00	0,00	1,29	1,90	3,71	**91,40**	1,70	0,00	0,00	Sf
135	11	FP-09	Feeding Point	143,28943	53,18960	16	10	1,85	0,00	0,00	0,07	0,38	22,95	**67,72**	2,44	3,22	1,37	Sf
136	12	FP-10	Feeding Point	143,27600	53,22650	12	9	0,00	0,00	1,00	10,90	16,40	**63,90**	6,90	0,90	0,00	0,00	Sm
137	13	FP-11	Feeding Point	143,28033	53,24433	17	9	0,70	0,00	0,20	0,40	0,40	2,50	**92,90**	1,70	0,60	0,60	Sf
138	14	FP-12	Feeding Point	143,26854	53,21993	13	13	0,00	2,50	2,30	8,30	17,20	**67,80**	0,30	1,00	0,60	0,00	Sm
139	15	FP-13	Feeding Point	143,26338	53,19812	8	9	0,00	0,00	0,10	5,00	10,50	**61,10**	21,90	0,60	0,80	0,00	Sm
140	16	FP-14	Feeding Point	143,26676	53,19839	8	9	0,73	0,00	0,00	0,71	0,31	1,50	**92,68**	2,77	0,89	0,41	Sf
141	17	FP-15	Feeding Point	143,27536	53,18775	8	9	0,00	0,00	0,30	1,00	5,40	**64,30**	27,70	0,60	0,70	0,00	Sm
142	18	FP-16	Feeding Point	143,28790	53,17677	8	10	0,50	0,00	0,00	0,30	0,10	11,40	**76,50**	5,00	6,20	0,00	Sf

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
143	19	FP-17	Feeding Point	143,29392	53,16048	8	10	0,78	0,00	0,00	0,45	0,18	1,15	**94,34**	2,57	0,53	0,00	34
144	20	FP-18	Feeding Point	143,24300	53,33117	21	10	1,90	0,00	3,72	22,70	35,28	32,56	1,70	0,76	1,38	0,00	Sm+Sc
145	21	FP-19	Feeding Point	143,24652	53,31762	16	10	0,00	0,00	6,80	23,30	26,90	35,90	4,30	0,70	2,10	0,00	Sm+Sc
146	22	FP-20	Feeding Point	143,23993	53,30145	14	10	0,60	0,00	2,70	1,40	2,20	15,80	**72,60**	2,20	2,50	0,00	Sf
147	23	FP-21	Feeding Point	143,25913	53,32632	24	10	1,53	0,00	0,00	0,04	0,27	23,38	**72,67**	0,89	0,73	0,49	Sf
148	24	FP-22	Feeding Point	143,27901	53,22103	13	10	0,00	0,40	3,30	14,00	26,40	47,50	7,40	1,00	0,00	0,00	Sm
149	25	FP-23	Feeding Point	143,61737	52,16359	40	10	0,70	0,00	0,10	1,10	19,40	**56,90**	20,60	0,40	0,80	0,00	Sm
150	26	FP-24	Feeding Point	143,65460	52,13165	43	10	0,00	0,20	0,23	6,70	**63,33**	25,72	3,82	0,00	0,00	0,00	Sc
151	27	FP-25	Feeding Point	143,64748	52,12420	43	10	1,22	3,72	3,19	**49,80**	24,74	12,56	2,10	0,76	1,38	0,53	Grf+Sc
152	28	FP-26	Feeding Point	143,60132	52,16560	39	9	0,00	0,00	0,80	13,90	52,40	20,90	10,90	0,50	0,60	0,00	Sc
153	29	FP-27	Feeding Point	143,60427	52,14782	40	11	0,00	0,00	0,00	0,00	2,86	44,76	**50,53**	1,85	0,00	0,00	Sf+Sm
154	30	FP-28	Feeding Point	143,72750	52,18700	33	9	0,00	0,00	0,20	2,00	7,10	**53,30**	35,80	0,90	0,70	0,00	Sm
155	31	FP-29	Feeding Point	143,75010	52,18762	48	9	0,50	3,10	9,50	13,60	21,10	44,10	6,90	0,10	0,60	0,50	Sm+Sc
156	32	FP-30	Feeding Point	143,69976	52,19210	43	9	0,00	0,00	8,09	10,70	31,57	34,89	14,53	0,22	0,00	0,00	Sf+Sm
157	33	FP-31	Feeding Point	143,73991	52,21785	43	9	0,90	0,00	0,00	3,80	4,40	**61,50**	27,70	0,10	0,80	0,80	Sm
158	34	FP-32	Feeding Point	143,71272	52,41500	43	9	4,90	23,12	24,28	17,67	4,04	2,08	**8,95**	4,18	7,54	3,24	Sf
159	35	FP-33	Feeding Point	143,71530	52,41308	43	9	0,41	4,10	18,20	17,20	**56,40**	0,30	0,70	1,79	0,46	0,44	Sm
160	36	FP-	Feeding Point	143,70567	52,39046	43	10	0,40	0,00	0,20	9,70	20,90	**62,10**	5,90	0,50	0,30	0,00	Sm

Item	Namber	Station	Area	Coordinates (decimal form)		Depth, м	Tempera-tuure	Sediments type										Soil code
								Peb	**Grc**	**Grm**	**Grf**	**Sc**	**Sm**	**Sf**	**Ac**	**Af**	**Pec**	
								Size of prevalent fraction, mm										
				Longitude	Latitude			> 10	10-5	5-2	2-1	1-0,5	0,5-0,25	0,25-0,1	0,1-0,05	0,05-0,01	< 0,01	
161	37	34 FP-35	Feeding Point	143,71273	52,35820	46	6	6,98	19,40	2,88	**51,95**	4,04	2,08	11,13	4,00	7,54	0,00	Grf
162	38	FP-36	Feeding Point	143,68715	52,24710	41	6	0,33	0,00	0,00	20,63	11,83	0,41	**61,35**	4,84	0,61	0,00	Sf
163	39	FP-37	Feeding Point	143,68592	52,25700	41	6	0,00	0,00	0,70	5,10	18,40	**67,10**	6,80	1,90	0,00	0,00	Sm
164	40	FP-38	Feeding Point	143,71588	52,27037	43	6	0,00	0,00	0,03	0,30	2,55	**56,06**	39,87	0,70	0,49	0,00	Sm
165	41	FP-39	Feeding Point	143,71391	52,27782	42	6	1,47	0,00	2,66	4,36	19,40	**53,56**	16,92	0,80	0,83	0,00	Sm
166	42	FP-40	Feeding Point	143,36183	52,80477	9	6	0,00	0,00	0,01	0,06	0,13	3,87	**93,37**	1,49	1,07	0,00	Sf
167	43	FP-41	Feeding Point	143,36783	52,80850	11	10	0,50	0,00	0,10	1,70	19,20	**64,20**	13,10	0,10	0,60	0,50	Sm
168	44	FP-42	Feeding Point	143,36950	52,81633	11	11	0,00	0,00	0,11	1,28	0,76	2,63	**92,51**	2,71	0,00	0,00	Sf
169	45	FP-43	Feeding Point	143,37367	52,81533	13	11	0,40	0,00	0,00	0,38	0,25	0,76	**95,51**	1,36	0,71	0,63	Sf
170	46	FP-44	Feeding Point	143,38167	52,80817	15	11	1,96	0,00	0,00	0,00	0,00	18,21	**77,77**	0,46	0,41	1,19	Sf
171	47	FP-45	Feeding Point	143,36533	52,81433	14	11	0,00	0,00	0,60	4,50	7,60	**61,40**	24,60	0,60	0,70	0,00	Sm

Appendix 4. Taxonomic list of benthic and nectobenthic species found in the Piltun and Offshore areas in 2001-2003.

Item	Species number	**Taxon/Species name**	**Code**
		Actiniaria – sea anemone*	
1	1	*Epiactis lewisi*	Act
212	2	*Halcampoides purpurea*	Act
		Amphipoda - amphipods	
2	1	*Acanthostepheia behringiensis*	Am
172	2	*Acanthostepheia malmgreni*	Am
173	3	*Ampelisca eoa*	Am
3	4	*Ampelisca eschrichti*	Am
188	5	*Ampelisca macrocephala*	Am
4	6	*Anisogammarus pugettensis*	Am
174	7	*Anisogammarus schmidti*	Am
189	8	*Anonyx compactus*	Am
5	9	*Anonyx kurilicus*	Am
190	10	*Anonyx lilljeborgi*	Am
6	11	*Anonyx nugax pacificus*	Am
7	12	*Anonyx ochoticus*	Am
191	13	*Anonyx pavlovskii*	Am
8	14	*Anonyx sp.*	Am
192	15	*Atylus carinatus*	Am
9	16	*Atylus collingi*	Am
175	17	*Bathymedon langsdorfi*	Am
10	18	*Bathymedon obtusifrons*	Am
193	19	*Bathymedon sp.*	Am
194	20	*Bathymedon subcarinatus*	Am
11	21	*Bathymedon tilessii*	Am
12	22	*Boeckosimus derjugini*	Am
176	23	*Boeckosimus simus*	Am
195	24	*Boeckosinus krassini*	Am
177	25	*Byblis erythrops*	Am
13	26	*Caprella cristibrachium*	Am
196	27	*Dulichia spinosissima*	Am
14	28	*Eogammarus schmidti*	Am
15	29	*Eohaustorius eous eous*	Am
16	30	*Ericthonius tolly*	Am
197	31	*Eyakia simplex*	Am
178	32	*Harpiniopsis kobjakovae*	Am

Item	Species number	**Taxon/Species name**	**Code**
198	33	*Harpiniopsis similis*	Am
199	34	*Harpiniopsis simplex*	Am
179	35	*Hippomedon denticulatus orientalis*	Am
200	36	*Ischyrocerus anguipes*	Am
17	37	*Ischyrocerus chamiossi*	Am
201	38	*Ischyrocerus cristatus*	Am
18	39	*Ischyrocerus elongatus*	Am
19	40	*Ischyrocerus krascheninnikovi*	Am
20	41	*Ischyrocerus sp.*	Am
202	42	*Jyrrhoe crenulata*	Am
180	43	*Lembos arcticus*	Am
203	44	*Lepidepecreum kasatka*	Am
21	45	*Maera loveni*	Am
22	46	*Melita sp.*	Am
23	47	*Melitoides makarovi*	Am
24	48	*Metopa clypeata*	Am
25	49	*Metopa layi*	Am
26	50	*Metopa majuscula*	Am
27	51	*Metopa sp.*	Am
28	52	*Metopa spitzbergensis*	Am
29	53	*Monoculodes crassirostris*	Am
30	54	*Monoculodes sp.*	Am
31	55	*Monoculodes zernovi*	Am
181	56	*Onisimus krassini*	Am
32	57	*Orchomene gurjanovae*	Am
33	58	*Orchomenella japonica*	Am
204	59	*Orchomenella nana*	Am
34	60	*Orchomenella pinguis*	Am
205	61	*Paraphoxus simplex*	Am
35	62	*Parapleustes tricuspis*	Am
182	63	*Parapleustes vasinae*	Am
183	64	*Paronesimus barentsi*	Am
36	65	*Photis baekmannae*	Am
206	66	*Photis fischmanni*	Am
37	67	*Photis reinchardi*	Am
38	68	*Photis sp.*	Am
207	69	*Pleustomesus japonicoides*	Am
39	70	*Pleusymtes sp.*	Am
208	71	*Pleusymtes sp.*	Am

Item	Species number	**Taxon/Species name**	**Code**
40	72	*Pleusymtes vasinae*	Am
209	73	*Podoceropsis nitida*	Am
41	74	*Pontharpinia longirostris*	Am
42	75	*Pontharpinia nasuta*	Am
43	76	*Pontharpinia robusta*	Am
44	77	*Pontoporeia affinis*	Am
210	78	*Protomedeia epimerata*	Am
48	79	*Protomedeia fasciata.*	Am
45	80	*Protomedeia macrocarpa*	Am
46	81	*Protomedeia microdactila*	Am
47	82	*Protomedeia popovi*	Am
211	83	*Protomedeia sp.*	Am
49	84	*Psammonyx kudrjaschovi*	Am
50	85	*Rhachotropis oculata*	Am
51	86	*Synchelidium gurjanovae*	Am
52	87	*Wecomedon minusculus*	Am
184	88	*Wecomedon wirketis*	Am
53	89	*Weswoodilla sp.*	Am
54	90	*Weswoodilla sp.1*	Am
		Ascidiacea – ascidians	
185	1	**Ascidia vegae**	Asc
55	2	*Pelonaia corrugata*	Asc
		Bivalvia – bivalve mollusks	
56	1	*Arvella japonica*	Bi
57	2	*Arvella manshurica*	Bi
213	3	*Astarte arctica*	Bi
214	4	*Astarte sp.*	Bi
58	5	*Crenella decussata decussata*	Bi
215	6	*Diplodonta aleutica*	Bi
216	7	*Ennucula fenuis*	Bi
59	8	*Hiatella arctica*	Bi
60	9	*Liocyma fluctuosa*	Bi
61	10	*Macoma balthica*	Bi
62	11	*Macoma calcarea*	Bi
217	12	*Macoma cuneipyga*	Bi
218	13	*Macoma golikovi*	Bi
63	14	*Macoma lama*	Bi
64	15	*Macoma middendorffi*	Bi

Item	Species number	**Taxon/Species name**	**Code**
65	16	*Macoma sp.*	Bi
66	17	*Mactromeris polynyma = Spisula voji*	Bi
67	18	*Megangulus luteus = Peronidia lutea*	Bi
68	19	*Musculus niger*	Bi
219	20	*Musculus sp.*	Bi
69	21	*Mya (Mya) priapus*	Bi
70	22	*Mya sp.*	Bi
220	23	*Mya truncata*	Bi
71	24	*Mysella planata*	Bi
72	25	*Mysella gurjanovae*	Bi
73	26	*Mysella kurilensis*	Bi
74	27	*Panomya sp. (juv.)*	Bi
75	28	*Serripes groenlandicus*	Bi
76	29	*Siliqua alta*	Bi
186	30	*Spisula sachalinensis*	Bi
221	31	*Thracia myopsis*	Bi
77	32	*Tridonta borealis*	Bi
78	33	*Tridonta montaqui*	Bi
79	34	*Tridonta rollandi*	Bi
80	35	*Vilasina vernicosa*	Bi
81	36	*Yoldia (Cnesterium) seminuda*	Bi
82	37	*Yoldia (Yoldia) myalis*	Bi
		Cirripedia - cirripedes*	
83	1	*Chthamalus dalli*	Ci
84	2	*Solidobalanus hesperius*	Ci
85	3	*Balanus cariosus*	Ci
		Cumacea - cumaceans	
86	1	*Diastylis bidentata*	Cu
87	2	*Diastylopsis dowsoni*	Cu
88	3	*Lamprops quadriplicata*	Cu
		Decapoda – decapod crustaceans	
89	1	*Hyas coarctatus (juv.)*	De
90	2	*Pagurus ochotensis*	De
91	3	*Pagurus pubescens*	De
92	4	*Crangon septemspinosa*	De
93	5	*Telmessus cheiragonus*	De
		Echinoidea – sea urchins	
94	1	*Echinarachnius parma*	Ech

Item	Species number	**Taxon/Species name**	**Code**
		Euphausiacea - krill	
95	1	*Thysanoessa raschii*	Euph
		Gastropoda – gastropod mollusks	
222	1	*Ancistroleis beringianus*	Ga
223	2	*Buccinum lichkeanum*	Ga
96	3	*Buccinum middendorffi*	Ga
97	4	*Buccinum percrassum*	Ga
98	5	*Buccinum sakhalinense*	Ga
224	6	*Cryptonatica aleutica*	Ga
99	7	*Cryptonatica clausa*	Ga
100	8	*Cryptonatica janthostoma*	Ga
225	9	*Cylichna alba*	Ga
101	10	*Cylichna consobrina*	Ga
102	11	*Lunatia pallida*	Ga
103	12	*Neptunea bulbacea*	Ga
104	13	*Piliscus radiatus*	Ga
105	14	*Pseudolimesus nassula*	Ga
106	15	*Solariella obscura intermedia*	Ga
		Holoturioidea – holotureans	
254		*Chiridota ochotensis*	Ho
		Hydroidea – hydroids*	
107	1	*Abietinaria thujarioides*	Hy
108	2	*Calicella syringa*	Hy
109	3	*Campanularia volubilis*	Hy
110	4	*Halecium reversum*	Hy
111	5	*Lafoea fruticosa*	Hy
112	6	*Obelia longissima*	Hy
113	7	*Sertularella plumosa*	Hy
114	8	*Sertularella similis*	Hy
115	9	*Sertularella tricuspidata*	Hy
116	10	*Sertularella gigantea*	Hy
117	11	*Sertularia similis*	Hy
118	12	*Thuiaria breitfussi*	Hy
119	13	*Thuiaria cylindrica*	Hy
120	14	*Thuiaria gonorhiza*	Hy
121	15	*Thuiaria triserialis*	Hy
		Isopoda - isopods	
122	1	*Saduria entomon*	Is

Item	Species number	**Taxon/Species name**	**Code**
123	2	*Synidotea bicuspida*	Is
124	3	*Synidotea cinerea*	Is
		Mysidacea – opossum shrimp	
125	1	*Tenagomysis orientalis*	My
		Ophiuroidea – brittle stars	
126	1	*Ophiura sarsi*	Oph
127	2	*Stegophiura nodosa*	Oph
		Pantopoda - pantopods	
128	1	*Nymphon striatum*	Pa
		Polychaeta – marine worms (bristle worms)	
129	1	*Ampharete acutifrons*	Po
226	2	*Ampharete crassiseta*	Po
227	3	*Ampharete finmarchica*	Po
130	4	*Ampharete goesi*	Po
228	5	*Ampharete lindstromi*	Po
131	6	*Arabella iricolor*	Po
132	7	*Autolytus prismaticus*	Po
133	8	*Capitella capitata*	Po
134	9	*Chaetozone setosa*	Po
135	10	*Chone teres*	Po
136	11	*Cistenides granulata*	Po
137	12	*Cistenides soldatovi*	Po
138	13	*Demonax fullo*	*Po*
139	14	*Eteone longa*	Po
229	15	*Eteone sp.*	Po
230	16	*Euchone analis*	Po
140	17	*Eumida sanguinea*	Po
141	18	*Euzonus sp.*	Po
231	19	*Exogone gemmifera*	Po
142	20	*Glycera capitata*	Po
143	21	*Glycinde armigera*	Po
144	22	*Goniada maculata*	*Po*
145	23	*Harmothoe imbricata*	Po
146	24	*Idanthyrsus armatus*	Po
232	25	*Laphania boecki*	Po
147	26	*Lumbrineris bifurcata*	Po
233	27	*Lumbrineris heteropoda*	Po
148	28	*Lumbrineris japonica*	Po

Item	Species number	**Taxon/Species name**	**Code**
149	29	*Lumbrineris minuta*	Po
150	30	*Lumbrineris sp.*	Po
151	31	*Magelona sachalinensis*	*Po*
234	32	*Mediomastus californiensis*	Po
152	33	*Melinna cristata*	Po
235	34	*Microclymene pacifica*	Po
236	35	*Nephthys californiensis*	Po
237	36	*Nephthys longosetosa*	Po
153	37	*Nephtys caeca*	Po
154	38	*Nephtys ciliata*	Po
155	39	*Nephtys longosetosa*	Po
238	40	*Nicomache sp.*	*Po*
239	41	*Onuphis geophiliformis*	Po
157	42	*Onuphis iridescens*	Po
158	43	*Onuphis shirikishinaiensis*	Po
240	44	*Onuphis sp.*	Po
159	45	*Ophelia limacina*	Po
241	46	*Paradiopatra fauchaldi*	Po
160	47	*Pectinaria sp.*	Po
242	48	*Pholoe longa*	Po
243	49	*Phyllodoce (Anaitides) maculata*	Po
161	50	*Phyllodoce groenlandica*	Po
244	51	*Phyllodoce sp.*	Po
245	52	*Pista cristata*	Po
246	53	*Polydora cardalia*	Po
247	54	*Polydora sp.*	Po
248	55	*Potamilla reniformis*	Po
162	56	*Potamilla torelli*	Po
163	57	*Praxillella praetermissa*	Po
249	58	*Proclea graffi*	Po
164	59	*Scalibregma inflatum*	Po
250	60	*Scolelepis sp.*	Po
165	61	*Scoloplos armiger*	Po
251	62	*Sphaerosyllis hirsuta*	Po
166	63	*Spio filicornis*	Po
252	64	*Spio sp.*	Po
167	65	*Spiophanes bombyx*	Po
168	66	*Travisia forbesii*	Po
169	67	*Travisia sp.*	Po

Item	Species number	**Taxon/Species name**	**Code**
253	68	*Typosyllis oerstedi*	Po
		Sipunculida – peanut worms	
170	1	*Phascolosoma japonicum*	Si
187	2	*Phascolosoma margaritacea*	Si
		Spongia – sponges*	
171	1	*Halichondria panicea*	Sp
		Pisces - fish	
	1	**Ammodytes hexapterus**	***Pi***

The sign " * " indicates taxa of attached epibenthic hydrobionts living on hard bottoms. The species found in the collections 2002-2003 are numbered in boldfact in the "Item" column.

Appendix 5. Quantitative Characteristics of Benthos at Piltun Area Stations.

Table A5.1. Species composition and quantitative characteristics of benthos (colony density – A, spec./m^2; biomass – B, g/m^2) at stations **in the Piltun Area.**

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-1M	8	1	*Eohaustorius eous eous*	Amphipoda	1550	53,27
1-1M	8	2	*Anisogammarus pugettensis*	Amphipoda	1550	28,54
1-1M	8	3	*Grandifoxus nasuta*	Amphipoda	155	21,31
1-1M	8	4	*Boeckosimus derjugini*	Amphipoda	310	7,61
1-1M	8	5	*Synidotea cinerea*	Isopoda	125	6
1-1M	8	6	*Grandifoxus longirostris*	Amphipoda	775	4,95
1-1M	8	7	*Grandifoxus robustus*	Amphipoda	310	4,57
1-1M	8	8	*Siliqua alta*	Bivalvia	2	3,98
1-1M	8	9	*Ammodytes hexapterus*	Pisces	1	2,98
1-1M	8	10	*Pleusymtes sp.*	Amphipoda	465	2,28
1-1M	8	11	*Tenagomysis orientalis*	Mysidacea	18	1,23
1-1M	8	12	*Mysella kurilensis*	Bivalvia	262	1,22
1-1M	8	13	*Synchelidium gurjanovae*	Amphipoda	310	0,76
1-1M	8	14	*Protomedeia fasciata*	Amphipoda	310	0,76
1-1M	8	15	*Melita sp.*	Amphipoda	155	0,76
1-1M	8	16	*Diastylis bidentata*	Cumacea	25	0,53
1-1M	8	17	*Macoma lama*	Bivalvia	8	0,38
1-1M	8	18	*Travisia forbesii*	Polychaeta	3	0,09
			Total		**6334**	**141,22**
1-1N	11	1	*Pontoporeia affinis*	Amphipoda	5783	102,2
1-1N	11	2	*Synidotea cinerea*	Isopoda	920	12,75
1-1N	11	3	*Anisogammarus pugettensis*	Amphipoda	56	8,67
1-1N	11	4	*Siliqua alta*	Bivalvia	23	5,67
1-1N	11	5	*Eogammarus schmidti*	Amphipoda	15	4,74
1-1N	11	6	*Diastylis bidentata*	Cumacea	261	4,3
1-1N	11	7	*Ammodytes hexapterus*	Pisces	3	3,5
1-1N	11	8	*Nephthys longosetosa*	Polychaeta	77	1,85
1-1N	11	9	*Eohaustorius eous eous*	Amphipoda	128	0,51
1-1N	11	10	*Thysanoessa raschii*	Euphasiacea	15	0,5
1-1N	11	11	*Anonyx nugax*	Amphipoda	7	0,37
1-1N	11	12	*Grandifoxus longirostris*	Amphipoda	105	0,28
1-1N	11	13	*Obestoma simplex*	Gastropoda	1	0,17
1-1N	11	14	*Orchomene gurjanovae*	Amphipoda	18	0,1

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-1N	11	15	*Pleusymtes sp.*	Amphipoda	3	0,06
1-1N	11	16	*Spio filicornis*	Polychaeta	19	0,05
1-1N	11	17	*Onuphis geophiliformis*	Polychaeta	38	0,04
1-1N	11	18	*Chaetozone setosa*	Polychaeta	77	0,03
1-1N	11	19	*Eteone sp.*	Polychaeta	38	0,01
1-1N	11	20	*Polydora cardalia*	Polychaeta	19	0,01
			Total		**7606**	**145,61**
1-1S	12	1	*Pontoporeia affinis*	Amphipoda	6769	114,91
1-1S	12	2	*Siliqua alta*	Bivalvia	35	18,14
1-1S	12	3	*Diastylis bidentata*	Cumacea	435	10,55
1-1S	12	4	*Anisogammarus pugettensis*	Amphipoda	67	9,77
1-1S	12	5	*Tenagomysis orientalis*	Mysidacea	81	6,21
1-1S	12	6	*Eogammarus schmidti*	Amphipoda	18	5,35
1-1S	12	7	*Synidotea cinerea*	Isopoda	35	3,89
1-1S	12	8	*Eohaustorius eous eous*	Amphipoda	151	0,57
1-1S	12	9	*Nephthys longosetosa*	Polychaeta	15	0,49
1-1S	12	10	*Grandifoxus longirostris*	Amphipoda	124	0,31
1-1S	12	11	*Megangulus luteus*	Bivalvia	10	0,23
1-1S	12	12	*Glycinde armigera*	Polychaeta	5	0,19
1-1S	12	13	*Macoma lama*	Bivalvia	2	0,17
1-1S	12	14	*Tridonta borealis*	Bivalvia	1	0,16
1-1S	12	15	*Spiophanes bombyx*	Polychaeta	5	0,01
			Total		**7753**	**170,95**
1-2M	8	1	*Pontoporeia affinis*	Amphipoda	19596	190,57
1-2M	8	2	*Synidotea cinerea*	Isopoda	341	5,4
1-2M	8	3	*Megangulus luteus*	Bivalvia	19	2,6
1-2M	8	4	*Diastylis bidentata*	Cumacea	90	1,55
1-2M	8	5	*Eogammarus schmidti*	Amphipoda	25	1,28
1-2M	8	6	*Yoldia myalis*	Bivalvia	2	0,53
1-2M	8	7	*Eohaustorius eous eous*	Amphipoda	443	0,42
1-2M	8	8	*Anisogammarus pugettensis*	Amphipoda	15	0,18
1-2M	8	9	*Grandifoxus longirostris*	Amphipoda	82	0,11
1-2M	8	10	*Nephthys sp.*	Polychaeta	28	0,09
1-2M	8	11	*Thysanoessa raschii*	Euphasiacea	1	0,05
1-2M	8	12	*Macoma sp.*	Bivalvia	2	0,05
1-2M	8	13	*Synchelidium gurjanovae*	Amphipoda	8	0,03
1-2M	8	14	*Monoculodes crassirostris*	Amphipoda	33	0,02
1-2M	8	15	*Orchomene gurjanovae*	Amphipoda	25	0,01

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-2M	8	16	*Westwoodilla sp.*	Amphipoda	8	0,01
			Total		**20718**	**202,9**
1-2N	13	1	*Pontoporeia affinis*	Amphipoda	2664	55,73
1-2N	13	2	*Eogammarus schmidti*	Amphipoda	167	24,58
1-2N	13	3	*Siliqua alta*	Bivalvia	18	6,05
1-2N	13	4	*Synidotea cinerea*	Isopoda	153	4,77
1-2N	13	5	*Ammodytes hexapterus*	Pisces	1	2,77
1-2N	13	6	*Anonyx nugax*	Amphipoda	11	1,27
1-2N	13	7	*Westwoodilla sp.*	Amphipoda	212	1,06
1-2N	13	8	*Nephthys ciliata*	Polychaeta	2	0,63
1-2N	13	9	*Diastylis bidentata*	Cumacea	48	0,42
1-2N	13	10	*Tellina lutea*	Bivalvia	5	0,41
1-2N	13	11	*Grandifoxus longirostris*	Amphipoda	199	0,22
1-2N	13	12	*Thysanoessa raschii*	Euphasiacea	20	0,18
1-2N	13	13	*Bispira polymorpha*	Polychaeta	1	0,17
1-2N	13	14	*Eohaustorius eous eous*	Amphipoda	107	0,14
1-2N	13	15	*Boeckosimus derjugini*	Amphipoda	14	0,14
1-2N	13	16	*Anisogammarus pugettensis*	Amphipoda	20	0,09
1-2N	13	17	*Lumbrineris heteropoda*	Polychaeta	1	0,09
1-2N	13	18	*Spio sp.*	Polychaeta	2	0,04
1-2N	13	19	*Grandifoxus robustus*	Amphipoda	8	0,03
1-2N	13	20	*Synchelidium gurjanovae*	Amphipoda	23	0,01
1-2N	13	21	*Grandifoxus nasuta*	Amphipoda	2	0,01
1-2N	13	22	*Melita sp.*	Amphipoda	2	0,01
1-2N	13	23	*Hyppomedon denticulatus orientalis*	Amphipoda	1	0,01
			Total		**3681**	**98,82**
1-2S	9	1	*Pontoporeia affinis*	Amphipoda	30333	240,78
1-2S	9	2	*Astarte arctica*	Bivalvia	62	18,8
1-2S	9	3	*Onuphis shirikishinaiensis*	Polychaeta	281	11,27
1-2S	9	4	*Synidotea cinerea*	Isopoda	1690	11,15
1-2S	9	5	*Anisogammarus pugettensis*	Amphipoda	537	4,25
1-2S	9	6	*Ammodytes hexapterus*	Pisces	3	3,67
1-2S	9	7	*Eogammarus schmidti*	Amphipoda	40	2,57
1-2S	9	8	*Anonyx nugax*	Amphipoda	13	2,02
1-2S	9	9	*Diastylis bidentata*	Cumacea	103	1,73
1-2S	9	10	*Atylus collingi*	Amphipoda	26	0,99
1-2S	9	11	*Eohaustorius eous eous*	Amphipoda	439	0,84
1-2S	9	12	*Megangulus luteus*	Bivalvia	2	0,51

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-2S	9	13	*Macoma sp.*	Bivalvia	2	0,38
1-2S	9	14	*Grandifoxus longirostris*	Amphipoda	120	0,33
1-2S	9	15	*Thysanoessa raschii*	Euphasiacea	6	0,07
1-2S	9	16	*Orchomene gurjanovae*	Amphipoda	20	0,03
			Total		**33677**	**299,39**
1-3M	10	1	*Pontoporeia affinis*	Amphipoda	5860	54,16
1-3M	10	2	*Synidotea cinerea*	Isopoda	1915	14,33
1-3M	10	3	*Grandifoxus longirostris*	Amphipoda	23	10,32
1-3M	10	4	*Siliqua alta*	Bivalvia	9	8,53
1-3M	10	5	*Megangulus luteus*	Bivalvia	17	2,18
1-3M	10	6	*Macoma lama*	Bivalvia	11	1,66
1-3M	10	7	*Eogammarus schmidti*	Amphipoda	28	1,19
1-3M	10	8	*Anisogammarus pugettensis*	Amphipoda	47	1,16
1-3M	10	9	*Tridonta borealis*	Bivalvia	1	1,13
1-3M	10	10	*Diastylis bidentata*	Cumacea	231	0,74
1-3M	10	11	*Macoma sp.*	Bivalvia	10	0,51
1-3M	10	12	*Onuphis shirikishinaiensis*	Polychaeta	30	0,38
1-3M	10	13	*Eohaustorius eous eous*	Amphipoda	52	0,16
1-3M	10	14	*Westwoodilla sp.*	Amphipoda	7	0,03
1-3M	10	15	*Atylus collingi*	Amphipoda	5	0,01
1-3M	10	16	*Orchomene gurjanovae*	Amphipoda	1	0,01
			Всего		**8247**	**96,5**
1-3N	10	1	*Pontoporeia affinis*	Amphipoda	25946	120,43
1-3N	10	2	*Synidotea cinerea*	Isopoda	1180	39,78
1-3N	10	3	*Tridonta borealis*	Bivalvia	3	23,77
1-3N	10	4	*Megangulus luteus*	Bivalvia	30	13,22
1-3N	10	5	*Liocyma fluctuosum*	Bivalvia	13	13,12
1-3N	10	6	*Siliqua alta*	Bivalvia	8	9,48
1-3N	10	7	*Tenagomysis orientalis*	Mysidacea	66	2,47
1-3N	10	8	*Diastylis bidentata*	Cumacea	75	1,76
1-3N	10	9	*Obestoma simplex*	Gastropoda	1	0,68
1-3N	10	10	*Anisogammarus pugettensis*	Amphipoda	48	0,66
1-3N	10	11	*Boeckosimus derjugini*	Amphipoda	3	0,4
1-3N	10	12	*Eogammarus schmidti*	Amphipoda	2	0,32
1-3N	10	13	*Nephthys sp.*	Polychaeta	3	0,3
1-3N	10	14	*Macoma lama*	Bivalvia	3	0,25
1-3N	10	15	*Anonyx nugax*	Amphipoda	2	0,2
1-3N	10	16	*Eohaustorius eous eous*	Amphipoda	25	0,08

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-3N	10	17	*Monoculodes crassirostris*	Amphipoda	1	0,04
1-3N	10	18	*Grandifoxus longirostris*	Amphipoda	17	0,02
1-3N	10	19	*Westwoodilla sp.*	Amphipoda	2	0,01
1-3N	10	20	*Synchelidium gurjanovae*	Amphipoda	1	0,01
			Total		**27429**	**227,2**
1-3S	9	1	*Pontoporeia affinis*	Amphipoda	20571	190,88
1-3S	9	2	*Liocyma fluctuosum*	Bivalvia	65	20,83
1-3S	9	3	*Synidotea cinerea*	Isopoda	1921	15,28
1-3S	9	4	*Thysanoessa raschii*	Euphasiacea	71	1,92
1-3S	9	5	*Diastylis bidentata*	Cumacea	135	1,78
1-3S	9	6	*Onuphis shirikishinaiensis*	Polychaeta	290	0,92
1-3S	9	7	*Anisogammarus pugettensis*	Amphipoda	48	0,8
1-3S	9	8	*Eogammarus schmidti*	Amphipoda	3	0,64
1-3S	9	9	*Boeckosimus derjugini*	Amphipoda	3	0,62
1-3S	9	10	*Anonyx nugax*	Amphipoda	3	0,4
1-3S	9	11	*Obestoma simplex*	Gastropoda	1	0,29
1-3S	9	12	*Maldanidae*	Polychaeta	225	0,21
1-3S	9	13	*Eohaustorius eous eous*	Amphipoda	28	0,13
1-3S	9	14	*Anonyx lilljeborgi*	Amphipoda	1	0,08
1-3S	9	15	*Phascolosoma margaritacea*	Sipunculida	0	0,05
1-3S	9	16	*Grandifoxus longirostris*	Amphipoda	21	0,03
1-3S	9	17	*Eteone sp.*	Polychaeta	5	0,03
1-3S	9	18	*Westwoodilla sp.*	Amphipoda	3	0,02
1-3S	9	19	*Synchelidium gurjanovae*	Amphipoda	1	0,02
1-3S	9	20	*Spionidae g.sp.*	Polychaeta	10	0,02
			Total		**23405**	**234,95**
1-4M	10	1	*Pontoporeia affinis*	Amphipoda	21531	124,88
1-4M	10	2	*Eogammarus schmidti*	Amphipoda	6145	69,21
1-4M	10	3	*Tridonta borealis*	Bivalvia	10	21,03
1-4M	10	4	*Megangulus luteus*	Bivalvia	27	16,75
1-4M	10	5	*Synidotea cinerea*	Isopoda	1116	14,5
1-4M	10	6	*Liocyma fluctuosum*	Bivalvia	10	10,92
1-4M	10	7	*Siliqua alta*	Bivalvia	12	8,8
1-4M	10	8	*Buccinum lichkeanum*	Gastropoda	1	8,49
1-4M	10	9	*Tenagomysis orientalis*	Mysidacea	91	3,91
1-4M	10	10	*Eohaustorius eous eous*	Amphipoda	4409	3,29
1-4M	10	11	*Travisia forbesii*	Polychaeta	10	1,91
1-4M	10	12	*Anisogammarus pugettensis*	Amphipoda	172	1,57

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-4M	10	13	*Diastylis bidentata*	Cumacea	58	1,54
1-4M	10	14	*Macoma lama*	Bivalvia	3	1,13
1-4M	10	15	*Grandifoxus longirostris*	Amphipoda	732	0,72
1-4M	10	16	*Anonyx nugax*	Amphipoda	11	0,47
1-4M	10	17	*Anonyx lilljeborgi*	Amphipoda	6	0,46
1-4M	10	18	*Boeckosimus krassini*	Amphipoda	40	0,31
1-4M	10	19	*Westwoodilla sp.*	Amphipoda	233	0,25
1-4M	10	20	*Boeckosimus derjugini*	Amphipoda	34	0,21
1-4M	10	21	*Bathymedon sp.*	Amphipoda	8	0,02
1-4M	10	22	*Bathymedon subcarinatus*	Amphipoda	14	0,02
1-4M	10	23	*Synchelidium gurjanovae*	Amphipoda	80	0,01
1-4M	10	24	*Protomedeia epimerata*	Amphipoda	34	0,01
1-4M	10	25	*Orchomenelle pinguis*	Amphipoda	2	0,01
1-4M	10	26	*Protomedeia sp.*	Amphipoda	2	0,01
			Total		**34791**	**290,43**
1-4N	13	1	*Pontoporeia affinis*	Amphipoda	6154	113,95
1-4N	13	2	*Synidotea cinerea*	Isopoda	505	20,27
1-4N	13	3	*Eogammarus schmidti*	Amphipoda	120	12,46
1-4N	13	4	*Nephthys longosetosa*	Polychaeta	66	4,08
1-4N	13	5	*Yoldia myalis*	Bivalvia	12	3,07
1-4N	13	6	*Anisogammarus pugettensis*	Amphipoda	61	2,03
1-4N	13	7	*Ammodytes hexapterus*	Pisces	1	1,98
1-4N	13	8	*Megangulus luteus*	Bivalvia	18	1,78
1-4N	13	9	*Eohaustorius eous eous*	Amphipoda	990	1,61
1-4N	13	10	*Thysanoessa raschii*	Euphasiacea	25	1,06
1-4N	13	11	*Anonyx lilljeborgi*	Amphipoda	1	0,87
1-4N	13	12	*Diastylis bidentata*	Cumacea	36	0,47
1-4N	13	13	*Anonyx nugax*	Amphipoda	2	0,37
1-4N	13	14	*Grandifoxus longirostris*	Amphipoda	201	0,31
1-4N	13	15	*Boeckosimus derjugini*	Amphipoda	5	0,15
1-4N	13	16	*Westwoodilla sp.*	Amphipoda	42	0,11
1-4N	13	17	*Eteone sp.*	Polychaeta	97	0,11
1-4N	13	18	*Boeckosimus krassini*	Amphipoda	1	0,1
1-4N	13	19	*Macoma sp.*	Bivalvia	2	0,05
1-4N	13	20	*Bathymedon sp.*	Amphipoda	4	0,03
1-4N	13	21	*Onuphis sp.*	Polychaeta	33	0,03
1-4N	13	22	*Obestoma simplex*	Gastropoda	1	0,02
1-4N	13	23	*Protomedeia epimerata*	Amphipoda	8	0,01

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-4N	13	24	*Orchomenelle pinguis*	Amphipoda	3	0,01
1-4N	13	25	*Bathymedon subcarinatus*	Amphipoda	3	0,01
1-4N	13	26	*Synchelidium gurjanovae*	Amphipoda	2	0,01
1-4N	13	27	*Protomedeia sp.*	Amphipoda	3	0,01
1-4N	13	28	*Chaetozone setosa*	Polychaeta	66	0,01
			Total		**8462**	**164,97**
1-4S	12	1	Eogammarus schmidti	Amphipoda	838	47,97
1-4S	12	2	Pontoporeia affinis	Amphipoda	1075	34,91
1-4S	12	3	Synidotea cinerea	Isopoda	43	18,9
1-4S	12	4	Liocyma fluctuosum	Bivalvia	7	15,4
1-4S	12	5	Ammodytes hexapterus	Pisces	10	11,85
1-4S	12	6	Eohaustorius eous eous	Amphipoda	3273	11,5
1-4S	12	7	Siliqua alta	Bivalvia	3	4,82
1-4S	12	8	Megangulus luteus	Bivalvia	10	1,8
1-4S	12	9	Travisia forbesii	Polychaeta	11	0,63
1-4S	12	10	Grandifoxus longirostris	Amphipoda	22	0,34
1-4S	12	11	Seripes groenlandicus	Bivalvia	2	0,33
1-4S	12	12	Boeckosimus krassini	Amphipoda	5	0,18
1-4S	12	13	Anisogammarus pugettensis	Amphipoda	1	0,13
1-4S	12	14	Westwoodilla sp.	Amphipoda	17	0,07
1-4S	12	15	Boeckosimus derjugini	Amphipoda	2	0,02
1-4S	12	16	Macoma sp.	Bivalvia	2	0,02
1-4S	12	17	Synchelidium gurjanovae	Amphipoda	10	0,01
			Всего		**5331**	**148,88**
1-5M	12	1	*Echinarachnius parma*	Echinoidea	60	125,33
1-5M	12	2	*Astarte arctica*	Bivalvia	24	73,13
1-5M	12	3	*Synidotea cinerea*	Isopoda	2921	34,31
1-5M	12	4	*Eohaustorius eous eous*	Amphipoda	1851	18,76
1-5M	12	5	*Eogammarus schmidti*	Amphipoda	6	10,31
1-5M	12	6	*Megangulus luteus*	Bivalvia	2	7,01
1-5M	12	7	*Anisogammarus pugettensis*	Amphipoda	52	4,78
1-5M	12	8	*Thysanoessa raschii*	Euphasiacea	105	3,51
1-5M	12	9	*Onuphis iridescens*	Polychaeta	373	2,935
1-5M	12	10	*Ammodytes hexapterus*	Pisces	1	2,26
1-5M	12	11	*Diastylis bidentata*	Cumacea	93	1,53
1-5M	12	12	*Boeckosimus derjugini*	Amphipoda	2	1,53
1-5M	12	13	*Protomedeia fasciata*	Amphipoda	108	1,22
1-5M	12	14	*Microclymene pacifica*	Polychaeta	90	1,15

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-5M	12	15	*Pontoporeia affinis*	Amphipoda	7	1,13
1-5M	12	16	*Grandifoxus longirostris*	Amphipoda	50	1,03
1-5M	12	17	*Protomedeia epimerata*	Amphipoda	39	0,42
1-5M	12	18	*Macoma sp.*	Bivalvia	2	0,38
1-5M	12	19	*Grandifoxus robustus*	Amphipoda	6	0,24
1-5M	12	20	*Monoculodes zernovi*	Amphipoda	2	0,13
1-5M	12	21	*Ischyrocerus sp.*	Amphipoda	2	0,08
1-5M	12	22	*Synchelidium gurjanovae*	Amphipoda	14	0,07
1-5M	12	23	*Protomedeia sp.*	Amphipoda	5	0,06
1-5M	12	24	*Tenagomysis orientalis*	Mysidacea	3	0,05
1-5M	12	25	*Mediomastus californiensis*	Polychaeta	40	0,05
			Total		**5858**	**291,405**
1-5N	9	1	*Synidotea cinerea*	Isopoda	3673	55,25
1-5N	9	2	*Onuphis shirikishinaiensis*	Polychaeta	1423	21,8
1-5N	9	3	*Echinarachnius parma*	Echinoidea	13	18.32
1-5N	9	4	*Pontoporeia affinis*	Amphipoda	742	15,48
1-5N	9	5	*Eogammarus schmidti*	Amphipoda	66	11,04
1-5N	9	6	*Siliqua alta*	Bivalvia	11	2,71
1-5N	9	7	*Diastylis bidentata*	Cumacea	106	1,8
1-5N	9	8	*Thysanoessa raschii*	Euphasiacea	3	0,07
1-5N	9	9	*Tenagomysis orientalis*	Mysidacea	3	0,06
1-5N	9	10	*Anisogammarus pugettensis*	Amphipoda	11	0,06
1-5N	9	11	*Eohaustorius eous eous*	Amphipoda	54	0,04
1-5N	9	12	*Grandifoxus longirostris*	Amphipoda	10	0,02
1-5N	9	13	*Boeckosimus derjugini*	Amphipoda	3	0,01
1-5N	9	14	*Protomedeia fasciata*	Amphipoda	8	0,01
1-5N	9	15	*Grandifoxus robustus*	Amphipoda	1	0,01
1-5N	9	16	*Westwoodilla sp.*	Amphipoda	3	0,01
			Total		**6130**	**108,37**
1-5S	13	1	*Megangulus luteus*	Bivalvia	13	131,25
1-5S	13	2	*Mactromeris polynyma*	Bivalvia	22	21,63
1-5S	13	3	*Echinarachnius parma*	Echinoidea	3	17,4
1-5S	13	4	Anisogammarus pugettensis	Amphipoda	143	16,43
1-5S	13	5	Eogammarus schmidti	Amphipoda	38	6,82
1-5S	13	6	*Thysanoessa raschii*	Euphasiacea	156	5,22
1-5S	13	7	*Synidotea cinerea*	Isopoda	91	4,92
1-5S	13	8	*Ammodytes hexapterus*	Pisces	1	3,38
1-5S	13	9	Eohaustorius eous eous	Amphipoda	1708	3,25

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
1-5S	13	10	*Glycinde armigera*	Polychaeta	70	1,95
1-5S	13	11	Anonyx nugax	Amphipoda	3	0,87
1-5S	13	12	Boeckosimus derjugini	Amphipoda	6	0,63
1-5S	13	13	Pontoporeia affinis	Amphipoda	20	0,41
1-5S	13	14	Grandifoxus robustus	Amphipoda	41	0,15
1-5S	13	15	Grandifoxus longirostris	Amphipoda	21	0,08
1-5S	13	16	Protomedeia epimerata	Amphipoda	13	0,07
1-5S	13	17	*Diastylis bidentata*	Cumacea	8	0,02
1-5S	13	18	Protomedeia fasciata	Amphipoda	8	0,02
1-5S	13	19	Westwoodilla sp.	Amphipoda	11	0,02
1-5S	13	20	Synchelidium gurjanovae	Amphipoda	6	0,01
1-5S	13	21	Podoceropsis nitida	Amphipoda	1	0,01
			Total		**2383**	**214,54**
2-1M	13	1	*Pontoporeia affinis*	Amphipoda	2191	65,75
2-1M	13	2	*Anonyx nugax*	Amphipoda	116	20,85
2-1M	13	3	*Eogammarus schmidti*	Amphipoda	89	16,16
2-1M	13	4	*Eohaustorius eous eous*	Amphipoda	139	15,31
2-1M	13	5	*Ammodytes hexapterus*	Pisces	5	5,81
2-1M	13	6	*Glycinde armigera*	Polychaeta	11	4,11
2-1M	13	7	*Synidotea cinerea*	Isopoda	20	2,79
2-1M	13	8	*Grandifoxus longirostris*	Amphipoda	17	0,83
2-1M	13	9	*Obestoma simplex*	Gastropoda	10	0,73
2-1M	13	10	*Echinarachnius parma*	Echinoidea	6	0,68
2-1M	13	11	*Thysanoessa raschii*	Euphasiacea	16	0,68
2-1M	13	12	*Grandifoxus robustus*	Amphipoda	11	0,55
2-1M	13	13	*Eteone sp.*	Polychaeta	2	0,31
2-1M	13	14	*Mactromeris polynyma*	Bivalvia	2	0,3
2-1M	13	15	*Nephthys ciliata*	Polychaeta	2	0,21
2-1M	13	16	*Harpiniopsis similis*	Amphipoda	6	0,1
2-1M	13	17	*Harpiniopsis simplex*	Amphipoda	20	0,1
2-1M	13	18	*Diastylis bidentata*	Cumacea	5	0,05
2-1M	13	19	*Westwoodilla sp.*	Amphipoda	9	0,04
2-1M	13	20	*Mysella kurilensis*	Bivalvia	13	0,03
2-1M	13	21	*Anisogammarus pugettensis*	Amphipoda	1	0,02
2-1M	13	22	*Hyppomedon denticulatus orientalis*	Amphipoda	1	0,02
2-1M	13	23	*Monoculodes zernovi*	Amphipoda	1	0,01
			Total		**2693**	**135,44**
2-1N	14	1	*Pontoporeia affinis*	Amphipoda	3155	70,52

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
2-1N	14	2	*Astarte arctica*	Bivalvia	2	14,42
2-1N	14	3	*Megangulus luteus*	Bivalvia	3	6,63
2-1N	14	4	*Diastylis bidentata*	Cumacea	285	5,8
2-1N	14	5	*Ammodytes hexapterus*	Pisces	1	5,02
2-1N	14	6	*Travisia forbesii*	Polychaeta	10	2,97
2-1N	14	7	*Saduria entomon*	Isopoda	40	2,58
2-1N	14	8	*Eogammarus schmidti*	Amphipoda	11	2,16
2-1N	14	9	*Anonyx nugax*	Amphipoda	5	1,01
2-1N	14	10	*Obestoma simplex*	Gastropoda	6	0,68
2-1N	14	11	*Anonyx lilljeborgi*	Amphipoda	1	0,26
2-1N	14	12	*Westwoodilla sp.*	Amphipoda	20	0,16
2-1N	14	13	*Grandifoxus robustus*	Amphipoda	10	0,14
2-1N	14	14	*Grandifoxus longirostris*	Amphipoda	30	0,1
2-1N	14	15	*Eohaustorius eous eous*	Amphipoda	16	0,06
2-1N	14	16	*Wecomedon minusculus*	Amphipoda	1	0,05
2-1N	14	17	*Monoculodes crassirostris*	Amphipoda	3	0,03
2-1N	14	18	*Protomedeia fasciata*	Amphipoda	1	0,02
2-1N	14	19	*Bathymedon sp.*	Amphipoda	1	0,01
			Total		**3564**	**112,62**
2-1S	11	1	*Pontoporeia affinis*	Amphipoda	8578	101,62
2-1S	11	2	*Anonyx nugax*	Amphipoda	320	20,49
2-1S	11	3	*Diastylis bidentata*	Cumacea	330	7,1
2-1S	11	4	*Eogammarus schmidti*	Amphipoda	305	6,61
2-1S	11	5	*Synidotea cinerea*	Isopoda	63	5,44
2-1S	11	6	*Yoldia myalis*	Bivalvia	53	2,93
2-1S	11	7	*Tenagomysis orientalis*	Mysidacea	21	0,83
2-1S	11	8	*Scoloplos armiger*	Polychaeta	0	0,72
2-1S	11	9	*Siliqua alta*	Bivalvia	3	0,63
2-1S	11	10	*Mysella kurilensis*	Bivalvia	22	0,35
2-1S	11	11	*Westwoodilla sp.*	Amphipoda	379	0,32
2-1S	11	12	*Obestoma simplex*	Gastropoda	1	0,18
2-1S	11	13	*Megangulus luteus*	Bivalvia	13	0,18
2-1S	11	14	*Macoma sp.*	Bivalvia	13	0,15
2-1S	11	15	*Grandifoxus longirostris*	Amphipoda	231	0,12
2-1S	11	16	*Eohaustorius eous eous*	Amphipoda	211	0,11
			Total		**10543**	**147,78**
2-2M	22	1	*Megangulus luteus*	Bivalvia	5	55,65
2-2M	22	2	*Nephthys californiensis*	Polychaeta	16	17,15

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
2-2M	22	3	*Synidotea cinerea*	Isopoda	210	16,63
2-2M	22	4	*Buccinum lichkeanum*	Gastropoda	3	13,73
2-2M	22	5	*Mactromeris polynyma*	Bivalvia	8	9,17
2-2M	22	6	*Eogammarus schmidti*	Amphipoda	25	6,32
2-2M	22	7	*Balanus cariosus*	Cirripedia	13	5,8
2-2M	22	8	*Ammodytes hexapterus*	Pisces	3	5,77
2-2M	22	9	*Anisogammarus pugettensis*	Amphipoda	1	0,25
2-2M	22	10	*Spiophanes bombyx*	Polychaeta	2	0,13
2-2M	22	11	*Chaetozone setosa*	Polychaeta	5	0,02
2-2M	22	12	*Scolelepis.sp*	Polychaeta	3	0,02
			Total		**294**	**130,63**
2-2N	13	1	*Echinarachnius parma*	Echinoidea	11	108,75
2-2N	13	9	*Anonyx nugax*	Amphipoda	301	66,11
2-2N	13	2	*Nephthys californiensis*	Polychaeta	10	6,83
2-2N	13	3	*Ammodytes hexapterus*	Pisces	3	4,72
2-2N	13	10	*Pontoporeia affinis*	Amphipoda	198	4,69
2-2N	13	4	*Mactromeris polynyma*	Bivalvia	6	4,47
2-2N	13	11	*Eohaustorius eous eous*	Amphipoda	167	1,99
2-2N	13	5	*Synidotea cinerea*	Isopoda	25	1,93
2-2N	13	12	*Anisogammarus pugettensis*	Amphipoda	3	0,46
2-2N	13	6	*Thysanoessa raschii*	Euphasiacea	8	0,35
2-2N	13	7	*Buccinum lichkeanum*	Gastropoda	6	0,11
2-2N	13	8	*Diastylis bidentata*	Cumacea	31	0,07
2-2N	13	13	*Westwoodilla sp.*	Amphipoda	18	0,07
2-2N	13	14	*Grandifoxus longirostris*	Amphipoda	5	0,06
2-2N	13	15	*Synchelidium gurjanovae*	Amphipoda	49	0,03
			Total		**830**	**91,89**
2-2S	15	1	*Eogammarus schmidti*	Amphipoda	145	23,23
2-2S	15	2	*Seripes groenlandicus*	Bivalvia	2	6,14
2-2S	15	3	*Astarte arctica*	Bivalvia	18	5,56
2-2S	15	4	*Synidotea cinerea*	Isopoda	106	3,77
2-2S	15	5	*Nephthys californiensis*	Polychaeta	20	3,19
2-2S	15	6	*Pontoporeia affinis*	Amphipoda	211	2,21
2-2S	15	7	*Anisogammarus pugettensis*	Amphipoda	31	1,92
2-2S	15	8	*Anonyx nugax*	Amphipoda	3	0,41
2-2S	15	9	*Obestoma simplex*	Gastropoda	3	0,37
2-2S	15	10	*Anonyx sp.*	Amphipoda	1	0,3
2-2S	15	11	*Eohaustorius eous eous*	Amphipoda	74	0,23

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
2-2S	15	12	*Grandifoxus longirostris*	Amphipoda	107	0,21
2-2S	15	13	*Spiophanes bombyx*	Polychaeta	10	0,16
2-2S	15	14	*Boeckosimus derjugini*	Amphipoda	11	0,15
2-2S	15	15	*Grandifoxus robustus*	Amphipoda	18	0,14
2-2S	15	16	*Mactromeris polynyma*	Bivalvia	5	0,13
2-2S	15	17	*Diastylis bidentata*	Cumacea	28	0,08
2-2S	15	18	*Chaetozone setosa*	Polychaeta	10	0,03
2-2S	15	19	*Scolelepis.sp*	Polychaeta	10	0,03
2-2S	15	20	*Atylus carinatus*	Amphipoda	2	0,02
2-2S	15	21	*Westwoodilla sp.*	Amphipoda	3	0,01
			Total		**818**	**48,29**
2-3M	14	1	*Pontoporeia affinis*	Amphipoda	1025	47,12
2-3M	14	2	*Astarte arctica*	Bivalvia	22	36,8
2-3M	14	3	*Eogammarus schmidti*	Amphipoda	100	21,59
2-3M	14	4	*Eohaustorius eous eous*	Amphipoda	2573	11,9
2-3M	14	5	*Liocyma fluctuosum*	Bivalvia	2	11,12
2-3M	14	6	*Synidotea cinerea*	Isopoda	160	9,34
2-3M	14	7	*Travisia forbesii*	Polychaeta	1	5,56
2-3M	14	8	*Tridonta borealis*	Bivalvia	3	2,35
2-3M	14	9	*Mysella kurilensis*	Bivalvia	2	0,77
2-3M	14	10	*Grandifoxus longirostris*	Amphipoda	66	0,57
2-3M	14	11	*Macoma sp.*	Bivalvia	2	0,17
2-3M	14	12	*Scoloplos armiger*	Polychaeta	5	0,15
2-3M	14	13	*Anisogammarus pugettensis*	Amphipoda	65	0,11
2-3M	14	14	*Diastylis bidentata*	Cumacea	10	0,08
2-3M	14	15	*Boeckosimus derjugini*	Amphipoda	3	0,08
2-3M	14	16	*Boeckosimus krassini*	Amphipoda	7	0,08
2-3M	14	17	*Grandifoxus robustus*	Amphipoda	13	0,05
2-3M	14	18	*Glycera capitata*	Polychaeta	1	0,05
2-3M	14	19	*Scolelepis.sp*	Polychaeta	1	0,03
2-3M	14	20	*Chaetozone setosa*	Polychaeta	4	0,03
2-3M	14	21	*Westwoodilla sp.*	Amphipoda	13	0,02
2-3M	14	22	*Mya sp.*	Bivalvia	2	0,02
2-3M	14	23	*Onuphis sp.*	Polychaeta	3	0,02
2-3M	14	24	*Maldanidae juv*	Polychaeta	1	0,01
2-3M	14	25	*Nephthys sp.*	Polychaeta	2	0,01
			Total		**4086**	**148,03**
2-3N	13	1	*Pontoporeia affinis*	Amphipoda	2130	47,95

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
2-3N	13	2	*Eogammarus schmidti*	Amphipoda	191	32,62
2-3N	13	3	*Synidotea cinerea*	Isopoda	341	13,95
2-3N	13	4	*Ammodytes hexapterus*	Pisces	10	12,88
2-3N	13	5	*Anisogammarus pugettensis*	Amphipoda	54	4,2
2-3N	13	6	*Buccinum lichkeanum*	Gastropoda	1	3,13
2-3N	13	7	*Anonyx nugax*	Amphipoda	12	2,09
2-3N	13	8	*Tenagomysis orientalis*	Mysidacea	35	1,61
2-3N	13	9	*Westwoodilla sp.*	Amphipoda	74	0,51
2-3N	13	10	*Diastylis bidentata*	Cumacea	28	0,48
2-3N	13	11	*Liocyma fluctuosum*	Bivalvia	3	0,33
2-3N	13	12	*Eohaustorius eous eous*	Amphipoda	214	0,23
2-3N	13	13	*Grandifoxus longirostris*	Amphipoda	259	0,22
2-3N	13	14	*Astarte arctica*	Bivalvia	5	0,17
2-3N	13	15	*Boeckosimus derjugini*	Amphipoda	7	0,16
2-3N	13	16	*Grandifoxus robustus*	Amphipoda	6	0,04
2-3N	13	17	*Synchelidium gurjanovae*	Amphipoda	17	0,02
			Total		**3387**	**120,59**
2-3S	14	1	*Pontoporeia affinis*	Amphipoda	3067	59,81
2-3S	14	2	*Eogammarus schmidti*	Amphipoda	175	34,24
2-3S	14	3	*Tridonta borealis*	Bivalvia	31	27,83
2-3S	14	4	*Synidotea cinerea*	Isopoda	453	9,87
2-3S	14	5	*Anisogammarus pugettensis*	Amphipoda	58	5,03
2-3S	14	6	*Ammodytes hexapterus*	Pisces	3	4,47
2-3S	14	7	*Anonyx nugax*	Amphipoda	11	2,33
2-3S	14	8	*Thysanoessa raschii*	Euphasiacea	13	1,5
2-3S	14	9	*Travisia forbesii*	Polychaeta	25	0,72
2-3S	14	10	*Westwoodilla sp.*	Amphipoda	83	0,64
2-3S	14	11	*Diastylis bidentata*	Cumacea	100	0,53
2-3S	14	12	*Grandifoxus longirostris*	Amphipoda	239	0,28
2-3S	14	13	*Eohaustorius eous eous*	Amphipoda	178	0,26
2-3S	14	14	*Boeckosimus derjugini*	Amphipoda	8	0,21
2-3S	14	15	*Anonyx sp.*	Amphipoda	60	0,09
2-3S	14	16	*Grandifoxus robustus*	Amphipoda	7	0,04
2-3S	14	17	*Synchelidium gurjanovae*	Amphipoda	22	0,02
2-3S	14	18	*Orchomenelle pinguis*	Amphipoda	1	0,01
2-3S	14	19	*Orchomenella nana*	Amphipoda	1	0,01
2-3S	14	20	*Protomedeia fasciata*	Amphipoda	2	0,01
2-3S	14	21	*Bathymedon sp.*	Amphipoda	1	0,01

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
2-3S	14	22	*Ischyrocerus sp.*	Amphipoda	1	0,01
			Total		**4539**	**147,92**
2-4M	10	1	*Mactromeris polynyma*	Bivalvia	26	122,53
2-4M	10	2	*Echinarachnius parma*	Echinoidea	20	49,02
2-4M	10	3	*Pontoporeia affinis*	Amphipoda	950	22,49
2-4M	10	4	*Synidotea cinerea*	Isopoda	33	15,27
2-4M	10	5	*Eogammarus schmidti*	Amphipoda	123	12,9
2-4M	10	6	*Ammodytes hexapterus*	Pisces	6	8,52
2-4M	10	7	*Crangon septemspinosa*	Decapoda	16	2,19
2-4M	10	8	*Anonyx nugax*	Amphipoda	15	1,75
2-4M	10	9	*Westwoodilla sp.*	Amphipoda	148	0,98
2-4M	10	10	*Glycera capitata*	Polychaeta	6	0,59
2-4M	10	11	*Diastylis bidentata*	Cumacea	45	0,27
2-4M	10	12	*Grandifoxus longirostris*	Amphipoda	140	0,21
2-4M	10	13	*Eohaustorius eous eous*	Amphipoda	73	0,13
2-4M	10	14	*Boeckosimus derjugini*	Amphipoda	10	0,13
2-4M	10	15	*Anisogammarus pugettensis*	Amphipoda	13	0,08
2-4M	10	16	*Synchelidium gurjanovae*	Amphipoda	18	0,01
			Total		**1642**	**237,07**
2-4N	14	1	*Synidotea cinerea*	Isopoda	38	34,6
2-4N	14	2	*Eogammarus schmidti*	Amphipoda	95	21,05
2-4N	14	3	*Anisogammarus pugettensis*	Amphipoda	45	7,98
2-4N	14	4	*Anonyx nugax*	Amphipoda	1	0,13
2-4N	14	5	*Diastylis bidentata*	Cumacea	50	0,03
2-4N	14	6	*Pontoporeia affinis*	Amphipoda	1	0,02
			Total		**230**	**63,81**
2-5M	20	1	*Echinarachnius parma*	Echinoidea	33	575,95
2-5M	20	2	*Astarte arctica*	Bivalvia	25	77,21
2-5M	20	3	*Saduria entomon*	Isopoda	41	52,58
2-5M	20	4	*Anonyx nugax*	Amphipoda	105	7,68
2-5M	20	5	*Travisia forbesii*	Polychaeta	30	7,56
2-5M	20	6	*Ammodytes hexapterus*	Pisces	1	6,87
2-5M	20	7	*Buccinum sp.*	Gastropoda	3	1,92
2-5M	20	8	*Synidotea cinerea*	Isopoda	13	0,42
2-5M	20	9	*Scoloplos armiger*	Polychaeta	135	0,15
2-5M	20	10	*Diastylis bidentata*	Cumacea	6	0,05
2-5M	20	11	*Glycera capitata*	Polychaeta	30	0,05
2-5M	20	12	*Scolelepis.sp*	Polychaeta	15	0,03

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
2-5M	20	13	*Chaetozone setosa*	Polychaeta	120	0,03
			Total		**557**	**730,485**
2-5N	16	1	*Echinarachnius parma*	Echinoidea	6	64,15
2-5N	16	2	*Astarte arctica*	Bivalvia	30	42,9
2-5N	16	3	*Travisia forbesii*	Polychaeta	293	11,62
2-5N	16	4	*Synidotea cinerea*	Isopoda	133	8,83
2-5N	16	5	*Ammodytes hexapterus*	Pisces	1	6,73
2-5N	16	6	*Crangon septemspinosa*	Decapoda	1	2
2-5N	16	7	*Eohaustorius eous eous*	Amphipoda	178	0,8
2-5N	16	8	*Boeckosimus derjugini*	Amphipoda	8	0,68
2-5N	16	9	*Anisogammarus pugettensis*	Amphipoda	8	0,19
2-5N	16	10	*Atylus carinatus*	Amphipoda	1	0,05
2-5N	16	11	*Grandifoxus longirostris*	Amphipoda	11	0,02
2-5N	16	12	*Pontoporeia affinis*	Amphipoda	11	0,01
2-5N	16	13	*Protomedeia epimerata*	Amphipoda	10	0,01
			Total		**691**	**137,99**
2-5S	20	1	*Echinarachnius parma*	Echinoidea	51	777,03
2-5S	20	2	*Astarte arctica*	Bivalvia	22	99,5
2-5S	20	3	*Eohaustorius eous eous*	Amphipoda	76	9,53
2-5S	20	4	*Ammodytes hexapterus*	Pisces	1	6,87
2-5S	20	5	*Pontoporeia affinis*	Amphipoda	11	3,11
2-5S	20	6	*Travisia forbesii*	Polychaeta	14	2,73
2-5S	20	7	*Buccinum sp.*	Gastropoda	3	1,92
2-5S	20	8	*Westwoodilla sp.*	Amphipoda	0	1,43
2-5S	20	9	*Tridonta borealis*	Bivalvia	2	1,22
2-5S	20	10	*Anisogammarus pugettensis*	Amphipoda	6	0,24
2-5S	20	11	*Eogammarus schmidti*	Amphipoda	0	0,15
2-5S	20	12	*Diastylis bidentata*	Cumacea	6	0,07
2-5S	20	13	*Grandifoxus longirostris*	Amphipoda	3	0,04
2-5S	20	14	*Mactromeris polynyma*	Bivalvia	2	0,02
			Total		**197**	**903,86**
3-1M	16	1	*Echinarachnius parma*	*Echinoidea*	16	172,98
3-1M	16	2	*Astarte arctica*	*Bivalvia*	5	79,57
3-1M	16	3	*Synidotea cinerea*	*Isopoda*	21	16,83
3-1M	16	4	*Macoma lama*	*Bivalvia*	112	5,25
3-1M	16	5	*Nephthys longosetosa*	*Polychaeta*	5	2,55
3-1M	16	6	*Buccinum lichkeanum*	*Gastropoda*	61	0,28
3-1M	16	7	*Diastylis bidentata*	*Cumacea*	228	0,17

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
3-1M	16	8	*Capitella capitata*	*Polychaeta*	20	0,17
3-1M	16	9	*Scoloplos armiger*	*Polychaeta*	10	0,08
3-1M	16	10	*Phascolosoma margaritacea*	*Sipunculida*	1	0,03
3-1M	16	11	*Musculus sp.*	*Bivalvia*	2	0,02
3-1M	16	12	*Glycera capitata*	*Polychaeta*	10	0,01
			Total		**491**	**277,94**
3-1N	20	1	*Echinarachnius parma*	Echinoidea	95	1149,5
3-1N	20	2	*Saduria entomon*	Isopoda	11	66,83
3-1N	20	3	*Anonyx sp.*	Amphipoda	16	1,71
3-1N	20	4	*Macoma lama*	Bivalvia	85	0,38
3-1N	20	5	*Diastylis bidentata*	Cumacea	85	0,15
			Total		**292**	**1218,57**
3-2M	23	1	*Echinarachnius parma*	Echinoidea	85	523,57
3-2M	23	2	*Astarte arctica*	Bivalvia	2	43,17
3-2M	23	3	*Nephthys sp.*	Polychaeta	2	13,4
3-2M	23	4	*Chaetozone setosa*	Polychaeta	6	11,83
3-2M	23	5	*Saduria entomon*	Isopoda	6	11,43
3-2M	23	6	*Macoma golikovi*	Bivalvia	2	8,17
3-2M	23	7	*Lumbrineris minuta*	Polychaeta	3	5,11
3-2M	23	8	*Anonyx nugax*	Amphipoda	5	1,57
3-2M	23	9	*Diastylis bidentata*	Cumacea	66	0,1
			Total		**177**	**618,35**
3-2N	25	1	*Echinarachnius parma*	Echinoidea	5	127,87
3-2N	25	2	*Diastylis bidentata*	Cumacea	7165	44,9
3-2N	25	3	*Saduria entomon*	Isopoda	6	22,82
3-2N	25	4	*Nephthys sp.*	Polychaeta	13	1,23
3-2N	25	5	*Anonyx nugax*	Amphipoda	8	0,12
			Total		**7197**	**196,94**
3-2S	22	1	*Echinarachnius parma*	Echinoidea	268	122,47
3-2S	22	2	*Saduria entomon*	Isopoda	1	19,52
3-2S	22	3	*Balanus cariosus*	Cirripedia	16	6,43
3-2S	22	4	*Ampharete crassiseta*	Polychaeta	6	4,31
3-2S	22	5	*Glycera capitata*	Polychaeta	7	2,22
3-2S	22	6	*Anonyx nugax*	Amphipoda	4	0,79
3-2S	22	7	*Epiactis lewisi*	Actiniaria	1	0,42
3-2S	22	8	*Pleusymtes sp.*	Amphipoda	30	0,21
3-2S	22	9	*Ischyrocerus anguipes*	Amphipoda	61	0,19
3-2S	22	10	*Diastylis bidentata*	Cumacea	1	0,04

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
			Total		**395**	**156,6**
3-3M	26	1	*Echinarachnius parma*	Echinoidea	68	157,39
3-3M	26	2	*Saduria entomon*	Isopoda	25	75,89
3-3M	26	3	*Ampharetidae g. sp.*	Polychaeta	9	43,91
3-3M	26	4	*Buccinum sp.*	Gastropoda	1	40,92
3-3M	26	5	*Megangulus luteus*	Bivalvia	15	30,09
3-3M	26	6	*Crangon septemspinosa*	Decapoda	21	15,66
3-3M	26	7	*Nephthys sp.*	Polychaeta	18	11,34
3-3M	26	8	*Eteone longa*	Polychaeta	12	8,76
3-3M	26	9	*Anonyx nugax*	Amphipoda	18	4,11
3-3M	26	10	*Ischyrocerus anguipes*	Amphipoda	210	2,23
3-3M	26	11	*Macoma lama*	Bivalvia	9	2,03
3-3M	26	12	*Pleusymtes sp.*	Amphipoda	32	0,76
3-3M	26	13	*Diastylis bidentata*	Cumacea	56	0,07
			Total		**494**	**393,16**
3-3N	26	1	*Arvella manshurica*	Bivalvia	132	156,17
3-3N	26	2	*Echinarachnius parma*	Echinoidea	11	132,14
3-3N	26	3	*Epiactis lewisi*	Actiniaria	75	48,45
3-3N	26	4	*Macoma lama*	Bivalvia	2	41,17
3-3N	26	5	Chaetozone setosa	Polychaeta	61	22,38
3-3N	26	6	*Crangon septemspinosa*	Decapoda	5	6,63
3-3N	26	7	*Ammodytes hexapterus*	Pisces	1	5,83
3-3N	26	8	*Anonyx nugax*	Amphipoda	3	2,43
3-3N	26	9	*Astarte arctica*	Bivalvia	7	1,87
3-3N	26	10	*Pleusymtes sp.*	Amphipoda	120	1,32
3-3N	26	11	*Mactromeris polynyma*	Bivalvia	3	0,65
3-3N	26	12	*Phascolosoma margaritacea*	Sipunculida	6	0,44
3-3N	26	13	*Westwoodilla coecula*	Amphipoda	250	0,31
3-3N	26	14	*Musculus sp.*	Bivalvia	2	0,2
3-3N	26	15	*Diastylis bidentata*	Cumacea	3	0,09
3-3N	26	16	*Megangulus luteus*	Bivalvia	2	0,05
			Total		**683**	**420,13**
3-3S	23	1	*Echinarachnius parma*	Echinoidea	221	1578,54
3-3S	23	2	*Saduria entomon*	Isopoda	18	70,96
3-3S	23	3	Chaetozone setosa	Polychaeta	50	63,39
3-3S	23	4	*Cryptonatica clausa*	Gastropoda	3	40,92
3-3S	23	5	*Grandifoxus longirostris*	Amphipoda	241	8,01
3-3S	23	6	*Ammodytes hexapterus*	Pisces	1	4,05

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
3-3S	23	7	*Crangon septemspinosa*	Decapoda	0	1,41
3-3S	23	8	*Diastylis bidentata*	Cumacea	106	0,16
			Total		**640**	**1767,44**
3-4M	23	1	*Echinarachnius parma*	Echinoidea	326	399,03
3-4M	23	2	*Anonyx nugax*	Amphipoda	536	99,38
3-4M	23	3	*Ammodytes hexapterus*	Pisces	15	90,05
3-4M	23	4	*Bispira polymorpha*	Polychaeta	4	7,1
3-4M	23	5	*Epiactis lewisi*	Actiniaria	13	7,07
3-4M	23	6	*Lumbrineris heteropoda*	Polychaeta	212	1,14
3-4M	23	7	*Diastylis bidentata*	Cumacea	50	0,72
3-4M	23	8	*Cryptonatica clausa*	Gastropoda	3	0,42
3-4M	23	9	*Phascolosoma margaritacea*	Sipunculida	1	0,37
3-4M	23	10	*Mactromeris polynyma*	Bivalvia	5	0,13
3-4M	23	11	*Nephthys ciliata*	Polychaeta	9	0,12
3-4M	23	12	*Tenagomysis orientalis*	Mysidacea	1	0,03
3-4M	23	13	*Synidotea cinerea*	Isopoda	3	0,01
			Total		**1178**	**605,57**
3-4N	28	1	*Echinarachnius parma*	Echinoidea	113	331,53
3-4N	28	2	*Saduria entomon*	Isopoda	5	7,62
3-4N	28	3	*Ammodytes hexapterus*	Pisces	1	6,87
3-4N	28	4	*Grandifoxus longirostris*	Amphipoda	10	2,34
3-4N	28	5	*Nephthys ciliata*	Polychaeta	3	1,93
3-4N	28	6	*Diastylis bidentata*	Cumacea	15	0,32
			Total		**147**	**350,61**
3-4S	23	1	*Echinarachnius parma*	Echinoidea	390	1991,77
3-4S	23	2	*Astarte arctica*	Bivalvia	2	80,83
3-4S	23	3	*Nephthys sp.*	Polychaeta	16	11,22
3-4S	23	4	*Orchomenella pinguis*	Amphipoda	68	0,99
3-4S	23	5	*Synidotea cinerea*	Isopoda	13	0,42
3-4S	23	6	*Mactromeris polynyma*	Bivalvia	2	0,32
3-4S	23	7	*Diastylis bidentata*	Cumacea	3	0,02
3-4S	23	8	*Nymphon striatum*	Pantopoda	4	0,02
			Total		**498**	**2085,59**
3-5S	31	1	*Echinarachnius parma*	Echinoidea	263	1183,21
3-5S	31	2	*Megangulus luteus*	Bivalvia	178	530,67
3-5S	31	3	*Diastylis bidentata*	Cumacea	1853	20,83
3-5S	31	4	*Nephthys californiensis*	Polychaeta	12	19,13
3-5S	31	5	*Buccinum percrassum*	Gastropoda	3	14,25

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
3-5S	31	6	*Phascolosoma margaritacea*	Sipunculida	13	9,15
3-5S	31	7	*Synidotea cinerea*	Isopoda	186	6,41
3-5S	31	8	*Crangon septemspinosa*	Decapoda	16	5,05
3-5S	31	9	*Anonyx nugax*	Amphipoda	17	3,53
3-5S	31	10	*Epiactis lewisi*	Actiniaria	1	1,18
3-5S	31	11	*Musculus sp.*	Bivalvia	2	0,25
			Total		**2544**	**1793,66**
4-1M	23	1	*Echinarachnius parma*	Echinoidea	300	979,83
4-1M	23	2	*Potamilla torelli*	Polychaeta	20	35,55
4-1M	23	3	*Buccinum percrassum*	Gastropoda	1	31,25
4-1M	23	4	*Megangulus luteus*	Bivalvia	5	10,03
4-1M	23	5	*Anisogammarus pugettensis*	Amphipoda	140	7,76
4-1M	23	6	*Epiactis lewisi*	Actiniaria	3	1,46
4-1M	23	7	*Orchomenella gurjanovae*	Amphipoda	17	1,28
4-1M	23	8	*Anonyx nugax pacificus*	Amphipoda	3	1,06
4-1M	23	9	*Synchelidium gurjanovae*	Amphipoda	190	0,96
4-1M	23	10	*Balanus cariosus*	Cirripedia	1	0,68
4-1M	23	11	*Diastylis bidentata*	Cumacea	350	0,58
4-1M	23	12	*Atylus collingi*	Amphipoda	220	0,56
4-1M	23	13	*Macoma lama*	Bivalvia	3	0,01
			Total		**1253**	**1071,01**
4-1N	21	1	*Echinarachnius parma*	Echinoidea	160	645,63
4-1N	21	2	*Potamilla torelli*	Polychaeta	26	67,11
4-1N	21	3	*Chiridota ochotensis*	Holoturioidea	21	12,65
4-1N	21	4	*Saduria entomon*	Isopoda	1	11,43
4-1N	21	5	*Epiactis lewisi*	Actiniaria	11	6,79
4-1N	21	6	*Ammodytes hexapterus*	Pisces	1	3,12
4-1N	21	7	*Anonyx nugax pacificus*	Amphipoda	5	1,98
4-1N	21	8	*Mactromeris polynyma*	Bivalvia	5	0,38
4-1N	21	9	*Cryptonatica clausa*	Gastropoda	1	0,11
4-1N	21	10	*Diastylis bidentata*	Cumacea	6	0,02
			Total		**237**	**749,22**
4-1S	15	1	*Echinarachnius parma*	Echinoidea	60	307,1
4-1S	15	2	*Eogammarus schmidti*	Amphipoda	190	41,33
4-1S	15	3	*Pontoporeia affinis*	Amphipoda	250	36,64
4-1S	15	4	*Ammodytes hexapterus*	Pisces	13	19,9
4-1S	15	5	*Scoloplos armiger*	Polychaeta	20	9,25
4-1S	15	6	*Anonyx pacificus*	Amphipoda	20	3,39

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
4-1S	15	7	*Tenagomysis orientalis*	Mysidacea	10	0,66
4-1S	15	8	*Mactromeris polynyma*	Bivalvia	2	0,32
4-1S	15	9	*Diastylis bidentata*	Cumacea	130	0,19
4-1S	15	10	*Cryptonatica sp.*	Gastropoda	1	0,01
4-1S	15	11	*Crenella decussata*	Bivalvia	2	0,01
			Total		**698**	**418,8**
4-2M	24	1	*Echinarachnius parma*	Echinoidea	80	1409,9
4-2M	24	2	*Ammodytes hexapterus*	Pisces	1	5,18
4-2M	24	3	*Anonyx pacificus*	Amphipoda	15	3,45
4-2M	24	4	*Scoloplos armiger*	Polychaeta	2	2,72
4-2M	24	5	*Diastylis bidentata*	Cumacea	2469	2,58
			Total		**2567**	**1423,83**
4-2N	21	1	*Echinarachnius parma*	Echinoidea	56	354,62
4-2N	21	2	*Anonyx pacificus*	Amphipoda	386	102,7
4-2N	21	3	*Lumbrineris bifurcata*	Polychaeta	16	6,89
4-2N	21	4	*Diastylis bidentata*	Cumacea	376	1,39
4-2N	21	5	*Stegophiura nodosa*	Ophiuroidea	3	0,92
4-2N	21	6	*Mysella kurilensis*	Bivalvia	7	4,58
4-2N	21	7	*Macoma lama*	Bivalvia	2	0,01
			Total		**846**	**471,11**
4-2S	25	1	*Echinarachnius parma*	Echinoidea	85	490,73
4-2S	25	2	*Chiridota ochotensis*	Holoturioidea	290	170,68
4-2S	25	3	*Buccinum sp.*	Gastropoda	11	93,55
4-2S	25	4	*Crangon septemspinosa*	Decapoda	46	73,75
4-2S	25	5	*Arvella manshurica*	Bivalvia	312	22,98
4-2S	25	6	*Anonyx pacificus*	Amphipoda	60	16,55
4-2S	25	7	*Pontoporeia affinis*	Amphipoda	220	10,12
4-2S	25	8	*Eogammarus schmidti*	Amphipoda	80	8,18
4-2S	25	9	*Ammodytes hexapterus*	Pisces	1	7,08
4-2S	25	10	*Balanus cariosus*	Cirripedia	8	3,11
4-2S	25	11	*Mactromeris polynyma*	Bivalvia	75	1,92
4-2S	25	12	*Phascolosoma margaritacea*	Sipunculida	3	1,67
4-2S	25	13	*Mya sp.*	Bivalvia	3	0,1
4-2S	25	14	*Diastylis bidentata*	Cumacea	19	0,01
			Total		**1213**	**900,43**
4-3M	26	1	*Echinarachnius parma*	Echinoidea	86	311,86
4-3M	26	2	*Buccinum lichkeanum*	Gastropoda	1	40,92
4-3M	26	3	*Travisia forbesii*	Polychaeta	20	21,45

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
4-3M	26	4	*Ophelia limacina*	Polychaeta	80	8,32
4-3M	26	5	*Anonyx nugax*	Amphipoda	16	6,13
4-3M	26	6	*Saduria entomon*	Isopoda	1	3,83
4-3M	26	7	*Crangon septemspinosa*	Decapoda	1	1,41
4-3M	26	8	*Diastylis bidentata*	Cumacea	121	0,37
			Total		**326**	**394,29**
4-3N	27	1	*Echinarachnius parma*	Echinoidea	250	1304,69
4-3N	27	2	*Astarte arctica*	Bivalvia	40	226,82
4-3N	27	3	*Chiridota ochotensis*	Holoturioidea	15	93,98
4-3N	27	4	*Buccinum sp.*	Gastropoda	10	44,69
4-3N	27	5	*Synidotea cinerea*	Isopoda	33	34,38
4-3N	27	6	*Crangon septemspinosa*	Decapoda	35	22,51
4-3N	27	7	*Ammodytes hexapterus*	Pisces	3	15,58
4-3N	27	8	*Protomedeia popovi*	Amphipoda	110	6,33
4-3N	27	9	*Epiactis lewisi*	Actiniaria	25	6,3
4-3N	27	10	*Boeckosimus derjugini*	Amphipoda	160	4,36
4-3N	27	11	*Orchomenella gurjanovae*	Amphipoda	680	3,66
4-3N	27	12	*Travisia forbesii*	Polychaeta	1	2,64
4-3N	27	13	*Siliqua alta*	Bivalvia	2	2,28
4-3N	27	14	*Balanus cariosus*	Cirripedia	6	2,15
4-3N	27	15	*Diastylis bidentata*	Cumacea	113	1,5
4-3N	27	16	*Phascolosoma margaritacea*	Sipunculida	1	1,14
4-3N	27	17	*Stegophiura nodosa*	Ophiuroidea	30	0,44
4-3N	27	18	*Nemertini gen.sp.*	Nemartina	8	0,07
			Total		**1522**	**1773,52**
4-3S	28	1	*Echinarachnius parma*	Echinoidea	178	1079,05
4-3S	28	2	*Saduria entomon*	Isopoda	11	122,15
4-3S	28	3	*Astarte arctica*	Bivalvia	3	97,17
4-3S	28	4	*Anonyx nugax*	Amphipoda	23	7,51
			Total		**215**	**1305,88**
4-4N	30	1	*Echinarachnius parma*	Echinoidea	121	483,54
4-4N	30	2	*Saduria entomon*	Isopoda	18	70,96
4-4N	30	3	*Astarte arctica*	Bivalvia	50	63,39
4-4N	30	4	*Buccinum percrassum*	Gastropoda	4	40,92
4-4N	30	5	*Crangon septemspinosa*	Decapoda	2	1,41
4-4N	30	6	*Orchomenella gurjanovae*	Amphipoda	80	0,66
4-4N	30	7	*Boeckosimus derjugini*	Amphipoda	60	0,36
4-4N	30	8	*Protomedeia popovi*	Amphipoda	10	0,33

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
4-4N	30	9	*Diastylis bidentata*	Cumacea	106	0,06
			Total		**451**	**661,63**
4-4S	27	1	*Chiridota ochotensis*	Holoturioidea	93	25,19
4-4S	27	2	*Echinarachnius parma*	Echinoidea	40	23,8
4-4S	27	3	*Phascolosoma margaritacea*	Sipunculida	85	21,67
4-4S	27	4	*Epiactis lewisi*	Actiniaria	10	15,5
4-4S	27	5	*Astarte arctica*	Bivalvia	4	10,01
4-4S	27	6	*Crangon septemspinosa*	Decapoda	2	5,09
4-4S	27	7	*Pontharpinia longirostris*	Amphipoda	141	1,55
4-4S	27	8	*Mysella kurilensis*	Bivalvia	2	1,02
4-4S	27	9	*Cryptonatica clausa*	Gastropoda	5	0,49
4-4S	27	10	*Diastylis bidentata*	Cumacea	74	0,43
4-4S	27	11	*Macoma lama*	Bivalvia	2	0,01
			Total		**458**	**104,76**
4-5M	32	1	*Echinarachnius parma*	Echinoidea	120	618,21
4-5M	32	2	*Anonyx nugax*	Amphipoda	113	21,31
4-5M	32	3	*Macoma lama*	Bivalvia	10	9,78
4-5M	32	4	*Ophelia limacina*	Polychaeta	25	3,6
4-5M	32	5	*Diastylis bidentata*	Cumacea	475	3,01
4-5M	32	6	*Saduria entomon*	Isopoda	1	2,23
4-5M	32	7	*Cryptonatica clausa*	Gastropoda	1	2,23
4-5M	32	8	*Tenagomysis orientalis*	Mysidacea	6	0,1
			Total		**751**	**660,47**
4-5N	33	1	*Astarte arctica*	Bivalvia	40	39,13
4-5N	33	2	*Crangon septemspinosa*	Decapoda	11	26,07
4-5N	33	3	*Diastylis bidentata*	Cumacea	1055	12,32
4-5N	33	4	*Lumbrineris bifurcata*	Polychaeta	268	5,98
4-5N	33	5	*Nemertini gen.sp.*	Nemartina	16	0,12
			Total		**1390**	**83,62**

Appendix 5.

Table A5.2. Species composition and quantitative characteristics of benthos (colony density – A, spec./m^2; biomass – B, g/m^2) at stations of the a gray whale **Feeding Points in the Piltun Area.**

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-06	16	2	*Synidotea cinerea*	Isopoda	275	32,85
FP-06	16	3	*Megangulus luteus*	Bivalvia	11	22,88
FP-06	16	4	*Nephthys longosetosa*	Polychaeta	12	0,7
FP-06	16	5	*Pontoporeia affinis*	Amphipoda	23	0,42
FP-06	16	6	*Thysanoessa raschii*	Euphasiacea	8	0,29
FP-06	16	7	*Eohaustorius eous eous*	Amphipoda	10	0,02
FP-06	16	8	*Ampelisca eschrichti*	Amphipoda	2	0,02
FP-06	16	9	*Ampelisca macrocephala*	Amphipoda	2	0,02
				Total	**1066**	**117,31**
FP-07	17	1	*Pontoporeia affinis*	Amphipoda	1258	78,75
FP-07	17	2	*Siliqua alta*	Bivalvia	4	17,02
FP-07	17	3	*Liocyma fluctuosum*	Bivalvia	2	9,11
FP-07	17	4	*Synidotea cinerea*	Isopoda	50	4,54
FP-07	17	5	*Onuphis shirikishinaiensis*	Polychaeta	172	2,33
FP-07	17	6	*Macoma lama*	Bivalvia	2	2,13
FP-07	17	7	*Obestoma simplex*	Gastropoda	1	1,38
FP-07	17	8	*Thysanoessa raschii*	Euphasiacea	8	0,52
FP-07	17	9	*Anisogammarus pugettensis*	Amphipoda	23	0,33
FP-07	17	10	*Boeckosimus derjugini*	Amphipoda	1	0,26
FP-07	17	11	*Eogammarus schmidti*	Amphipoda	1	0,26
FP-07	17	12	*Anonyx nugax*	Amphipoda	1	0,17
FP-07	17	13	*Diastylis bidentata*	Cumacea	5	0,08
FP-07	17	14	*Eohaustorius eous eous*	Amphipoda	13	0,05
FP-07	17	15	*Anonyx lilljeborgi*	Amphipoda	2	0,03
FP-07	17	16	*Grandifoxus longirostris*	Amphipoda	10	0,01
FP-07	17	17	*Synchelidium gurjanovae*	Amphipoda	2	0,01
			Total		**1555**	**116,98**
FP-08	28	1	*Pontoporeia affinis*	Amphipoda	681	61,97
FP-08	28	2	*Astarte borealis*	Bivalvia	2	33,58
FP-08	28	3	*Tridonta rollandi*	Bivalvia	5	23,92
FP-08	28	4	*Epiactis lewisi*	Actiniaria	3	6,67
FP-08	28	5	*Onuphis iridescens*	Polychaeta	123	4,3
FP-08	28	6	*Mactromeris polynyma*	Bivalvia	2	3,77

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-08	28	7	*Diastylis bidentata*	Cumacea	3736	3,67
FP-08	28	8	*Synidotea cinerea*	Isopoda	40	3,2
FP-08	28	9	*Eohaustorius eous eous*	Amphipoda	174	2,72
FP-08	28	10	*Echinarachnius parma*	Echinoidea	1	1,95
FP-08	28	11	*Megangulus luteus*	Bivalvia	2	0,87
FP-08	28	12	*Grandifoxus longirostris*	Amphipoda	13	0,6
FP-08	28	13	*Boeckosimus krassini*	Amphipoda	3	0,32
FP-08	28	14	*Anisogammarus pugettensis*	Amphipoda	1	0,23
FP-08	28	15	*Westwoodilla sp.*	Amphipoda	10	0,14
FP-08	28	16	*Boeckosimus derjugini*	Amphipoda	1	0,04
FP-08	28	17	*Synchelidium gurjanovae*	Amphipoda	6	0,02
			Total		**4803**	**147,97**
FP-12	13	1	*Pontoporeia affinis*	Amphipoda	4637	160,95
FP-12	13	2	*Siliqua alta*	Bivalvia	6	20,97
FP-12	13	3	*Echinarachnius parma*	Echinoidea	155	3,53
FP-12	13	4	*Synidotea cinerea*	Isopoda	215	2,96
FP-12	13	5	*Anisogammarus pugettensis*	Amphipoda	142	0,67
FP-12	13	6	*Eogammarus schmidti*	Amphipoda	9	0,54
FP-12	13	7	*Boeckosimus derjugini*	Amphipoda	9	0,52
FP-12	13	8	*Megangulus luteus*	Bivalvia	2	0,37
FP-12	13	9	*Travisia forbesii*	Polychaeta	1	0,35
FP-12	13	10	*Anonyx nugax*	Amphipoda	9	0,34
FP-12	13	11	*Eohaustorius eous eous*	Amphipoda	83	0,11
FP-12	13	12	*Anonyx lilljeborgi*	Amphipoda	3	0,07
FP-12	13	13	*Grandifoxus longirostris*	Amphipoda	62	0,03
			Total		**5390**	**191,62**
FP-48	17	1	*Eogammarus schmidti*	Amphipoda	333	76,35
FP-48	17	2	*Ammodytes hexapterus*	Pisces	5	20,57
FP-48	17	3	*Nephthys californiensis*	Polychaeta	10	5,23
FP-48	17	4	*Spiophanes bombyx*	Polychaeta	10	1,96
FP-48	17	5	*Anonyx nugax*	Amphipoda	5	1,91
FP-48	17	6	*Mya sp.*	Bivalvia	2	1,67
FP-48	17	7	*Pontoporeia affinis*	Amphipoda	11	1,53
FP-48	17	8	*Synidotea cinerea*	Isopoda	57	1,46
FP-48	17	9	*Chaetozone setosa*	Polychaeta	2	0,42
FP-48	17	10	*Echinarachnius parma*	Echinoidea	6	0,04
FP-48	17	11	*Thysanoessa raschii*	Euphasiacea	3	0,03

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-48	17	12	*Eohaustorius eous eous*	Amphipoda	5	0,03
FP-48	17	13	*Ampelisca eschrichti*	Amphipoda	1	0,03
FP-48	17	14	*Ampelisca macrocephala*	Amphipoda	1	0,03
FP-48	17	15	*Crenella decussata*	Bivalvia	3	0,03
FP-48	17	16	*Mysella kurilensis*	Bivalvia	5	0,01
FP-48	17	17	*Scolelepis.sp*	Polychaeta	1	0,01
			Total		**461**	**111,63**
FP-49	25	1	*Saduria entomon*	Isopoda	366	45,5
FP-49	25	2	*Eogammarus schmidti*	Amphipoda	276	39,17
FP-49	25	3	*Travisia forbesii*	Polychaeta	13	36,19
FP-49	25	4	*Megangulus luteus*	Bivalvia	3	30,23
FP-49	25	5	*Pontoporeia affinis*	Amphipoda	606	18,81
FP-49	25	6	*Mactromeris polynyma*	Bivalvia	3	15,93
FP-49	25	7	*Nephthys sp.*	Polychaeta	27	3,5
FP-49	25	8	*Eohaustorius eous eous*	Amphipoda	169	1,32
FP-49	25	9	*Anonyx nugax*	Amphipoda	3	0,74
FP-49	25	10	*Scoloplos armiger*	Polychaeta	60	0,35
FP-49	25	11	*Anisogammarus pugettensis*	Amphipoda	5	0,23
FP-49	25	12	*Anonyx sp.*	Amphipoda	1	0,17
FP-49	25	13	*Glycera capitata*	Polychaeta	13	0,12
FP-49	25	14	*Scolelepis.sp*	Polychaeta	7	0,06
FP-49	25	15	*Chaetozone setosa*	Polychaeta	53	0,06
FP-49	25	16	*Onuphis sp.*	Polychaeta	40	0,03
FP-49	25	17	*Atylus collingi*	Amphipoda	1	0,02
FP-49	25	18	*Maldanidae juv*	Polychaeta	20	0,02
FP-49	25	19	*Ampelisca eschrichti*	Amphipoda	1	0,01
FP-49	25	20	*Ampelisca macrocephala*	Amphipoda	1	0,01
FP-49	25	21	*Westwoodilla sp.*	Amphipoda	1	0,01
FP-49	25	22	*Protomedeia fasciata*	Amphipoda	1	0,01
FP-49	25	23	*Monoculodes zernovi*	Amphipoda	1	0,01
			Total		**1671**	**192,5**
FP-50	17	1	*Pontoporeia affinis*	Amphipoda	1149	43,69
FP-50	17	2	*Eogammarus schmidti*	Amphipoda	229	35,28
FP-50	17	3	*Saduria entomon*	Isopoda	65	4,98
FP-50	17	4	*Eohaustorius eous eous*	Amphipoda	319	3,07
FP-50	17	5	*Megangulus luteus*	Bivalvia	6	2,7
FP-50	17	6	*Nephthys longosetosa*	Polychaeta	5	2,55

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-50	17	7	*Anisogammarus pugettensis*	Amphipoda	10	0,55
FP-50	17	8	*Diastylis bidentata*	Cumacea	3	0,5
FP-50	17	9	*Anonyx sp.*	Amphipoda	1	0,40
FP-50	17	10	*Anonyx nugax*	Amphipoda	1	0,32
FP-50	17	11	*Scoloplos armiger*	Polychaeta	4	0,08
FP-50	17	12	*Capitella capitata*	Polychaeta	12	0,07
FP-50	17	13	*Atylus collingi*	Amphipoda	3	0,04
FP-50	17	14	*Eteone sp.*	Polychaeta	10	0,03
FP-50	17	15	*Westwoodilla sp.*	Amphipoda	3	0,01
FP-50	17	16	*Protomedeia fasciata*	Amphipoda	1	0,01
FP-50	17	17	*Monoculodes zernovi*	Amphipoda	1	0,01
FP-50	17	18	*Glycera capitata*	Polychaeta	3	0,01
			Total		**1825**	**94,3**
FP-51	14	1	*Pontoporeia affinis*	Amphipoda	763	78,3
FP-51	14	2	*Eogammarus schmidti*	Amphipoda	85	32,67
FP-51	14	3	*Megangulus luteus*	Bivalvia	5	10,48
FP-51	14	4	*Eohaustorius eous eous*	Amphipoda	942	6,11
FP-51	14	5	*Nephthys caeca*	Polychaeta	16	3,04
FP-51	14	6	*Liocyma fluctuosum*	Bivalvia	2	2,11
FP-51	14	7	*Anonyx nugax*	Amphipoda	2	1,52
FP-51	14	8	*Boeckosimus derjugini*	Amphipoda	23	1,44
FP-51	14	9	*Grandifoxus longirostris*	Amphipoda	39	0,46
FP-51	14	10	*Protomedeia fasciata*	Amphipoda	9	0,16
FP-51	14	11	*Synchelidium gurjanovae*	Amphipoda	2	0,05
FP-51	14	12	*Echinarachnius parma*	Echinoidea	1	0,03
FP-51	14	13	*Grandifoxus robustus*	Amphipoda	12	0,03
			Total		**1901**	**136,4**
FP-52	14	1	*Eogammarus schmidti*	Amphipoda	361	102,88
FP-52	14	2	*Synidotea cinerea*	Isopoda	1488	92,42
FP-52	14	3	*Siliqua alta*	Bivalvia	8	38,27
FP-52	14	4	*Grandifoxus robustus*	Amphipoda	172	17,42
FP-52	14	5	*Eohaustorius eous eous*	Amphipoda	1202	16,24
FP-52	14	6	*Pontoporeia affinis*	Amphipoda	172	12,01
FP-52	14	7	*Megangulus luteus*	Bivalvia	13	7,65
FP-52	14	9	*Echinarachnius parma*	Echinoidea	26	1,32
FP-52	14	10	*Ammodytes hexapterus*	Pisces	1	1,1
FP-52	14	11	*Diastylis bidentata*	Cumacea	3	0,97

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-52	14	12	*Thysanoessa raschii*	Euphasiacea	1	0,7
FP-52	14	13	*Paraphoxus simplex*	Amphipoda	17	0,47
FP-52	14	14	*Macoma sp.*	Bivalvia	2	0,03
			Total		**3517**	**292,89**
FP-53	17	1	*Anonyx nugax*	Amphipoda	1615	129,85
FP-53	17	2	*Synidotea cinerea*	Isopoda	1160	87,23
FP-53	17	3	*Travisia forbesii*	Polychaeta	78	25,74
FP-53	17	4	*Obestoma simplex*	Gastropoda	3	1,93
FP-53	17	5	*Siliqua alta*	Bivalvia	1	4,57
FP-53	17	6	*Mactromeris polynyma*	Bivalvia	3	3,28
FP-53	17	7	*Megangulus luteus*	Bivalvia	8	21,18
			Total		**2868**	**273,78**
FP-54	16	1	*Eogammarus schmidti*	Amphipoda	1580	120,34
FP-54	16	2	*Synidotea cinerea*	Isopoda	890	32,42
FP-54	16	3	*Mactromeris polynyma*	Bivalvia	3	15,93
FP-54	16	4	*Megangulus luteus*	Bivalvia	3	30,23
			Total		**2476**	**198,92**

Appendix 6. Quantitative Characteristics of Benthos at Offshore Area Stations.

Table A6.1. Species composition and quantitative characteristics of benthos (colony density – A, spec./m^2; biomass – B, g/m^2) at stations in the Offshore Area.

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B1-1	27	1	*Anonyx nugax*	Amphipoda	309	23,2
B1-1	27	2	*Diastylis bidentata*	Cumacea	2506	8,4
B1-1	27	3	*Crangon septemspinosa*	Decapoda	1	8,07
B1-1	27	4	*Ammodytes hexapterus*	Pisces	3	5,85
B1-1	27	5	*Liocyma fluctuosum*	Bivalvia	5	5,4
B1-1	27	6	*Neptunea bulbacea*	Gastropoda	1	4,75
B1-1	27	7	*Wecomedon minusculus*	Amphipoda	423	4,51
B1-1	27	8	*Glycinde armigera*	Polychaeta	11	2,11
B1-1	27	9	*Orchomenella pinguis*	Amphipoda	141	0,44
B1-1	27	10	*Eohaustorius eous eous*	Amphipoda	106	0,31
B1-1	27	11	*Monoculodes zernovi*	Amphipoda	132	0,18
B1-1	27	12	*Grandifoxus longirostris*	Amphipoda	71	0,16
B1-1	27	13	*Grandifoxus robustus*	Amphipoda	35	0,13
B1-1	27	14	*Acanthostepheia beringiensis*	Amphipoda	9	0,08
B1-1	27	15	*Pleusymtes vasinae*	Amphipoda	9	0,08
			Total		**3762**	**63,63**
B1-2	24,5	1	*Serripes groenlandicus*	Bivalvia	14	224,58
B1-2	24,5	2	*Ampelisca eschrichti*	Amphipoda	2175	65,1
B1-2	24,5	3	*Diastylis bidentata*	Cumacea	18193	35,5
B1-2	24,5	4	*Chaetozone setosa*	Polychaeta	40	18,55
B1-2	24,5	5	*Mactromeris polynyma*	Bivalvia	7	7,8
B1-2	24,5	6	*Cryptonatica clausa*	Gastropoda	8	3,16
B1-2	24,5	7	*Photis tenuicornis*	Amphipoda	870	3,12
B1-2	24,5	8	*Macra loveni*	Amphipoda	20	3,07
B1-2	24,5	9	*Ericthonius tolli*	Amphipoda	183	0,95
B1-2	24,5	10	*Arctolembos arcticus*	Amphipoda	1	0,91
B1-2	24,5	11	*Chiridota ochotensis*	Holoturioidea	1	0,12
B1-2	24,5	12	*Melita sp.*	Amphipoda	4	0,05
B1-2	24,5	13	*Pleusymtes vasinae*	Amphipoda	1	0,03
B1-2	24,5	14	*Orchomenella pinguis*	Amphipoda	5	0,01
			Total		**21522**	**362,95**
B1-3	19	1	*Diastylis bidentata*	Cumacea	51426	84,55
B1-3	19	2	*Cryptonatica clausa*	Gastropoda	5	34,92
B1-3	19	3	*Protomedeia fasciata*	Amphipoda	1042	28,67
B1-3	19	4	*Megangulus luteus*	Bivalvia	2	22,85
B1-3	19	5	*Mactromeris polynyma*	Bivalvia	2	2,58
B1-3	19	6	*Chaetozone setosa*	Polychaeta	2	1,79
B1-3	19	7	*Echinarachnius parma*	Echinoidea	5	0,08
			Total		**52484**	**175,44**
B1-4	18	1	*Echinarachnius parma*	Echinoidea	63	154,25

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B1-4	18	2	*Megangulus luteus*	Bivalvia	7	21,73
B1-4	18	3	*Halcampoides purpurea*	Actiniaria	36	19,16
B1-4	18	4	*Anonyx nugax*	Amphipoda	416	6,29
B1-4	18	5	*Siliqua alta*	Bivalvia	2	4,48
B1-4	18	6	*Glycera capitata*	Polychaeta	6	3,1
B1-4	18	7	*Ammodytes hexapterus*	Pisces	1	0,6
B1-4	18	8	*Diastylis bidentata*	Cumacea	25	0,09
			Total		**556**	**209,7**
B2-1	30	1	*Ampelisca eschrichti*	Amphipoda	3175	226,69
B2-1	30	2	*Serripes groenlandicus*	Bivalvia	5	202,5
B2-1	30	3	*Diastylis bidentata*	Cumacea	15853	70,92
B2-1	30	4	*Echinarachnius parma*	Echinoidea	5	11,67
B2-1	30	5	*Protomedeia fasciata*	Amphipoda	290	6,27
B2-1	30	6	*Photis vinogradovi*	Amphipoda	1521	4,81
B2-1	30	7	*Macra loveni*	Amphipoda	36	4,54
B2-1	30	8	*Ericthonius tolli*	Amphipoda	415	3,18
B2-1	30	9	*Anonyx nugax*	Amphipoda	5	1,89
B2-1	30	10	*Spiophanes bombyx*	Polychaeta	4	1,2
B2-1	30	11	*Ampelisca macrocephala*	Amphipoda	4	0,36
B2-1	30	12	*Pleustidae sp.*	Amphipoda	5	0,2
B2-1	30	13	*Boeckosimus krassini*	Amphipoda	9	0,13
B2-1	30	14	*Ischyrocerus sp.*	Amphipoda	36	0,1
B2-1	30	15	*Ischyrocerus anguipes*	Amphipoda	21	0,1
B2-1	30	16	*Hippomedon sp.*	Amphipoda	5	0,07
B2-1	30	17	*Gammaropsis*	Amphipoda	5	0,07
B2-1	30	18	*Mya sp.*	Bivalvia	2	0,05
B2-1	30	19	*Lepidepecreum kasatka*	Amphipoda	4	0,03
B2-1	30	20	*Orchomenella sp.*	Amphipoda	4	0,03
			Total		**21404**	**534,81**
B2-2	30	1	*Ampelisca eschrichti*	Amphipoda	3024	62,18
B2-2	30	2	*Diastylis bidentata*	Cumacea	5386	38,53
B2-2	30	3	*Liocyma fluctuosum*	Bivalvia	1	14,48
B2-2	30	4	*Halcampoides purpurea*	Actiniaria	5	13,22
B2-2	30	5	*Ampelisca macrocephala*	Amphipoda	101	9,18
B2-2	30	6	*Nephthys sp.*	Polychaeta	5	8,1
B2-2	30	7	*Crangon septemspinosa*	Decapoda	1	6,3
B2-2	30	8	*Protomedeia fasciata*	Amphipoda	30	1,32
B2-2	30	9	*Photis sp.*	Amphipoda	72	0,22
B2-2	30	10	*Wecomedon minusculus*	Amphipoda	3	0,13
B2-2	30	11	*Anonyx pavlovskii*	Amphipoda	1	0,08
B2-2	30	12	*Stegophiura nodosa*	Ophiuroidea	0	0,03
B2-2	30	13	*Grandifoxus nasuta*	Amphipoda	4	0,03
B2-2	30	14	*Orchomenella pinguis*	Amphipoda	9	0,02
B2-2	30	15	*Anonyx anivae*	Amphipoda	2	0,02

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B2-2	30	16	*Anonyx compactus*	Amphipoda	4	0,02
B2-2	30	17	*Grandifoxus robustus*	Amphipoda	3	0,02
			Total		**8651**	**153,86**
B2-3	24	1	*Diastylis bidentata*	Cumacea	47360	60,92
B2-3	24	2	*Anonyx sp.*	Amphipoda	416	8,78
B2-3	24	3	*Cryptonatica aleutica*	Gastropoda	1	4,62
B2-3	24	4	*Serripes groenlandicus*	Bivalvia	2	2,42
B2-3	24	5	*Glycinde armigera*	Polychaeta	2	1,64
B2-3	24	6	*Siliqua alta*	Bivalvia	2	0,37
B2-3	24	7	*Stegophiura nodosa*	Ophiuroidea	1	0,04
B2-3	24	8	*Ammodytes hexapterus*	Pisces	3	0,03
B2-3	24	9	*Mactromeris polynyma*	Bivalvia	2	0,03
			Total		**47789**	**78,85**
B2-4	23	1	*Serripes groenlandicus*	Bivalvia	5	117,63
B2-4	23	2	*Diastylis bidentata*	Cumacea	48700	81,12
B2-4	23	3	*Halcampoides purpurea*	Actiniaria	51	65,9
B2-4	23	4	*Mactromeris polynyma*	Bivalvia	33	39,63
B2-4	23	5	*Photis reinhardi*	Amphipoda	1025	30,45
B2-4	23	6	*Megangulus luteus*	Bivalvia	3	24,75
B2-4	23	7	*Nephthys caeca*	Polychaeta	10	5,63
B2-4	23	8	*Siliqua alta*	Bivalvia	8	2,62
B2-4	23	9	*Ammodytes hexapterus*	Pisces	8	0,24
			Total		**49843**	**367,97**
B3-1	32	1	*Serripes groenlandicus*	Bivalvia	46	226,15
B3-1	32	2	*Ampelisca eschrichti*	Amphipoda	7308	224,5
B3-1	32	3	*Diastylis bidentata*	Cumacea	5400	43,23
B3-1	32	4	*Macra loveni*	Amphipoda	27	2,25
B3-1	32	5	*Protomedeia fasciata*	Amphipoda	162	1,12
			Total		**12943**	**497,25**
B3-2	34	1	*Ampelisca eschrichti*	Amphipoda	5706	351,3
B3-2	34	2	*Diastylis bidentata*	Cumacea	19463	162,42
B3-2	34	3	*Serripes groenlandicus*	Bivalvia	16	57,21
B3-2	34	4	*Protomedeia fasciata*	Amphipoda	643	10,41
B3-2	34	5	*Protomedeia epimerata*	Amphipoda	2691	5,99
B3-2	34	6	*Anonyx compactus*	Amphipoda	114	1,93
B3-2	34	7	*Boeckosimus krassini*	Amphipoda	131	1,7
B3-2	34	8	*Photis sp.*	Amphipoda	825	1,3
B3-2	34	9	*Wecomedon minusculus*	Amphipoda	28	0,7
B3-2	34	10	*Melita sp.*	Amphipoda	40	0,67
B3-2	34	11	*Anonyx pavlovskii*	Amphipoda	17	0,67
B3-2	34	12	*Grandifoxus robustus*	Amphipoda	216	0,53
B3-2	34	13	*Orchomenella pinguis*	Amphipoda	199	0,37
B3-2	34	14	*Anonyx sp.*	Amphipoda	28	0,37
B3-2	34	15	*Bathymedon subcarinatus*	Amphipoda	57	0,17

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B3-2	34	16	*Grandifoxus nasuta*	Amphipoda	40	0,13
B3-2	34	17	*Paraphoxus simplex*	Amphipoda	296	0,13
B3-2	34	18	*Anonyx anivae*	Amphipoda	17	0,1
B3-2	34	19	*Anonyx lilljeborgi*	Amphipoda	11	0,1
B3-2	34	20	*Syrrhoe crenulata*	Amphipoda	11	0,07
B3-2	34	21	*Halcampoides purpurea*	Actiniaria	3	0,04
B3-2	34	22	*Pleusymtes sp.*	Amphipoda	40	0,03
			Total		**30592**	**596,34**
B3-3	30	1	*Diastylis bidentata*	Cumacea	12020	114,13
B3-3	30	2	*Ampelisca eschrichti*	Amphipoda	2045	104,42
B3-3	30	3	*Serripes groenlandicus*	Bivalvia	10	97,85
B3-3	30	4	*Halcampoides purpurea*	Actiniaria	8	45,07
B3-3	30	5	*Piliscus radiatus*	Gastropoda	3	12,65
B3-3	30	6	*Photis reinhardi*	Amphipoda	2023	11,13
B3-3	30	7	*Glycera capitata*	Polychaeta	6	9,28
B3-3	30	8	*Liocyma fluctuosum*	Bivalvia	2	6,33
B3-3	30	9	*Anonyx sp.*	Amphipoda	22	0,94
B3-3	30	10	*Protomedeia fasciata*	Amphipoda	99	0,76
B3-3	30	11	*Wecomedon minusculus*	Amphipoda	18	0,7
B3-3	30	12	*Boeckosinus krassini*	Amphipoda	29	0,36
B3-3	30	13	*Paraphoxus simplex*	Amphipoda	205	0,35
B3-3	30	14	*Grandifoxus robustus*	Amphipoda	62	0,33
B3-3	30	15	*Protomedeia epimerata*	Amphipoda	103	0,33
B3-3	30	16	*Grandifoxus nasuta*	Amphipoda	26	0,19
B3-3	30	17	*Bathymedon subcarinatus*	Amphipoda	40	0,12
B3-3	30	18	*Orchomenella pinguis*	Amphipoda	48	0,07
B3-3	30	19	*Grandifoxus longirostris*	Amphipoda	11	0,04
B3-3	30	20	*Stegophiura nodosa*	Ophiuroidea	1	0,03
B3-3	30	21	*Eohaustorius eous eous*	Amphipoda	4	0,03
B3-3	30	22	*Ischyrocerus sp.*	Amphipoda	18	0,02
			Total		**16803**	**405,13**
B3-4	28	1	*Halcampoides purpurea*	Actiniaria	151	84,43
B3-4	28	2	*Echinarachnius parma*	Echinoidea	8	18,63
B3-4	28	3	*Ammodytes hexapterus*	Pisces	3	18,01
B3-4	28	4	*Serripes groenlandicus*	Bivalvia	2	15,18
B3-4	28	5	*Buccinum percrassum*	Gastropoda	1	3,45
B3-4	28	6	*Glycera capitata*	Polychaeta	1	3,27
B3-4	28	7	*Anonyx sp.*	Amphipoda	10	2,73
B3-4	28	8	*Siliqua alta*	Bivalvia	2	2,73
B3-4	28	9	*Astarte sp.*	Bivalvia	2	0,37
B3-4	28	10	*Diastylis bidentata*	Cumacea	18	0,05
B3-4	28	11	*Stegophiura nodosa*	Ophiuroidea	1	0,04
			Total		**199**	**148,89**
B4-1	33	1	*Ampelisca eschrichti*	Amphipoda	2205	454,57

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B4-1	33	2	*Diastylis bidentata*	Cumacea	15573	51,89
B4-1	33	3	*Halcampoides purpurea*	Actiniaria	5	50,87
B4-1	33	4	*Glycinde armigera*	Polychaeta	21	13,9
B4-1	33	5	*Anonyx nugax*	Amphipoda	15	13,18
B4-1	33	6	*Buccinum percrassum*	Gastropoda	3	2,72
B4-1	33	7	*Macoma loveni*	Bivalvia	12	1,55
B4-1	33	8	*Astarte sp.*	Bivalvia	2	0,53
B4-1	33	9	*Crenella decussata*	Bivalvia	22	0,19
B4-1	33	10	*Crangon septemspinosa*	Decapoda	3	0,07
B4-1	33	11	*Macoma sp.*	Bivalvia	2	0,02
B4-1	33	12	*Mysella kurilensis*	Bivalvia	2	0,01
			Total		**17865**	**589,5**
B4-2	30	1	*Ampelisca eschrichti*	Amphipoda	6898	298,7
B4-2	30	2	*Halcampoides purpurea*	Actiniaria	6	70,87
B4-2	30	3	*Serripes groenlandicus*	Bivalvia	1	59,4
			Total			
B4-3	25	1	*Ampelisca eschrichti*	Amphipoda	489	71,29
B4-3	25	2	*Serripes groenlandicus*	Bivalvia	5	45,78
B4-3	25	3	*Halcampoides purpurea*	Actiniaria	6	41,7
B4-3	25	4	*Diastylis bidentata*	Cumacea	3173	34,13
B4-3	25	5	*Chiridota ochotensis*	Holoturioidea	1	21,7
B4-3	25	6	*Nemertini gen.sp.*	Nemartina	10	10,67
B4-3	25	7	*Crangon septemspinosa*	Decapoda	1	9,87
B4-3	25	8	*Anonyx nugax*	Amphipoda	77	4,85
B4-3	25	9	*Wecomedon minusculus*	Amphipoda	174	3,16
B4-3	25	10	*Protomedeia fasciata*	Amphipoda	216	1,73
B4-3	25	11	*Cryptonatica aleutica*	Gastropoda	1	1,67
B4-3	25	12	*Photis reinhardi*	Amphipoda	306	1,48
B4-3	25	13	*Bispira sp.*	Polychaeta	0	1,13
B4-3	25	14	*Protomedeia epimerata*	Amphipoda	87	0,44
B4-3	25	15	*Bathymedon subcarinatus*	Amphipoda	67	0,26
B4-3	25	16	*Anonyx sp.*	Amphipoda	4	0,17
B4-3	25	17	*Anonyx pavlovskii*	Amphipoda	0	0,14
B4-3	25	18	*Orchomenella pinguis*	Amphipoda	50	0,14
B4-3	25	19	*Monoculodes zernovi*	Amphipoda	39	0,11
B4-3	25	20	*Paraphoxus simplex*	Amphipoda	100	0,1
B4-3	25	21	*Eohaustorius eous eous*	Amphipoda	16	0,09
B4-3	25	22	*Pleusymtes vasinae*	Amphipoda	7	0,08
B4-3	25	23	*Grandifoxus robustus*	Amphipoda	19	0,08
B4-3	25	24	*Boeckosinus krassini*	Amphipoda	5	0,08
B4-3	25	25	*Grandifoxus longirostris*	Amphipoda	16	0,06
B4-3	25	26	*Grandifoxus nasuta*	Amphipoda	11	0,06
B4-3	25	27	*Anonyx compactus*	Amphipoda	5	0,05
B4-3	25	28	*Photis sp.*	Amphipoda	9	0,04

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B4-3	25	29	*Ischyrocerus sp.*	Amphipoda	10	0,03
B4-3	25	30	*Melita sp.*	Amphipoda	0	0,03
B4-3	25	31	*Pleusymtes sp.*	Amphipoda	9	0,02
B4-3	25	32	*Parapleustes sp.*	Amphipoda	4	0,01
			Total		**4917**	**251,15**
B4-4	29	1	*Diastylis bidentata*	Cumacea	51826	245,38
B4-4	29	2	*Echinarachnius parma*	Echinoidea	21	70,43
B4-4	29	3	*Liocyma fluctuosum*	Bivalvia	15	42,7
B4-4	29	4	*Anonyx nugax*	Amphipoda	193	13,75
B4-4	29	5	*Neptunea bulbacea*	Gastropoda	1	6,73
B4-4	29	6	*Bispira sp.*	Polychaeta	2	3,55
B4-4	29	7	*Wecomedon minusculus*	Amphipoda	205	3,2
B4-4	29	8	*Glycera capitata*	Polychaeta	5	2,48
B4-4	29	9	*Praxillella praetermissa*	Polychaeta	4	1,08
B4-4	29	10	*Crangon septemspinosa*	Decapoda	1	0,92
B4-4	29	11	*Spiophanes bombyx*	Polychaeta	2	0,55
B4-4	29	12	*Chiridota ochotensis*	Holoturioidea	1	0,5
B4-4	29	13	*Spio filicornis*	Polychaeta	2	0,42
B4-4	29	14	*Monoculodes zernovi*	Amphipoda	118	0,32
B4-4	29	15	*Ampelisca macrocephala*	Amphipoda	8	0,28
B4-4	29	16	*Pholoe longa*	Polychaeta	1	0,27
B4-4	29	17	*Glycinde armigera*	Polychaeta	1	0,26
B4-4	29	18	*Pleusymtes vasinae*	Amphipoda	23	0,23
B4-4	29	19	*Orchomenella pinguis*	Amphipoda	48	0,17
B4-4	29	20	*Ampharete sp.*	Polychaeta	1	0,17
B4-4	29	21	*Grandifoxus longirostris*	Amphipoda	37	0,15
B4-4	29	22	*Eohaustorius eous eous*	Amphipoda	40	0,14
B4-4	29	23	*Scoloplos armiger*	Polychaeta	0	0,1
B4-4	29	24	*Maldanidae*	Polychaeta	1	0,08
B4-4	29	25	*Sabellidae juv*	Polychaeta	0	0,05
B4-4	29	26	*Bathymedon subcarinatus*	Amphipoda	7	0,04
B4-4	29	27	*Bathymedon langsdorfi*	Amphipoda	5	0,04
B4-4	29	28	*Grandifoxus robustus*	Amphipoda	7	0,03
B4-4	29	29	*Bathymedon sp.*	Amphipoda	7	0,03
B4-4	29	30	*Protomedeia epimerata*	Amphipoda	2	0,02
B4-4	29	31	*Ischyrocerus sp.*	Amphipoda	2	0,02
B4-4	29	32	*Acanthostepheia beringiensis*	Amphipoda	2	0,02
B4-4	29	33	*Ischyrocerus anguipes*	Amphipoda	2	0,01
			Total		**52590**	**394,12**
B5-1	44	1	*Ampelisca eschrichti*	Amphipoda	1203	405,01
B5-1	44	2	*Ampelisca macrocephala*	Amphipoda	386	93,56
B5-1	44	3	*Halcampoides purpurea*	Actiniaria	16	56,53
B5-1	44	4	*Liocyma fluctuosum*	Bivalvia	2	18,27
B5-1	44	5	*Photis vinogradovi*	Amphipoda	785	15,71

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B5-1	44	6	*Diastylis bidentata*	Cumacea	406	3,33
B5-1	44	7	*Protomedeia fasciata*	Amphipoda	133	2,6
B5-1	44	8	*Macra loveni*	Amphipoda	6	1,97
B5-1	44	9	*Ericthonius tolli*	Amphipoda	89	0,36
B5-1	44	10	*Boeckosimus krassini*	Amphipoda	19	0,3
B5-1	44	11	*Glycera capitata*	Polychaeta	8	0,26
B5-1	44	12	*Ischyrocerus sp.*	Amphipoda	70	0,2
B5-1	44	13	*Ennucula tenuis*	Bivalvia	2	0,17
B5-1	44	14	*Gammaropsis*	Amphipoda	13	0,15
B5-1	44	15	*Pleusymtes sp.*	Amphipoda	6	0,01
			Total		**3144**	**598,43**
B5-2	38	1	*Ampelisca eschrichti*	Amphipoda	6476	221,56
B5-2	38	2	*Ennucula tenuis*	Bivalvia	4	85,23
			Total		**6480**	**306,79**
B5-3	32	1	*Ampelisca eschrichti*	Amphipoda	703	263,6
B5-3	32	2	*Ennucula tenuis*	Bivalvia	2	62,71
B5-3	32	3	*Halcampoides purpurea*	Actiniaria	10	60,67
B5-3	32	4	*Diastylis bidentata*	Cumacea	4880	43,32
B5-3	32	5	*Photis vinogradovi*	Amphipoda	1276	21,34
B5-3	32	6	*Ericthonius tolli*	Amphipoda	315	14,76
B5-3	32	7	*Liocyma fluctuosum*	Bivalvia	3	12,95
B5-3	32	8	*Glycera capitata*	Polychaeta	15	8,43
B5-3	32	9	*Ischyrocerus sp.*	Amphipoda	29	5,45
B5-3	32	10	*Protomedeia fasciata*	Amphipoda	36	4,57
B5-3	32	11	*Boeckosimus krassini*	Amphipoda	7	2,02
B5-3	32	12	*Mya sp.*	Bivalvia	2	1,77
B5-3	32	13	*Spiophanes bombyx*	Polychaeta	4	1,32
B5-3	32	14	*Spio filicornis*	Polychaeta	11	1,23
B5-3	32	15	*Glycinde armigera*	Polychaeta	4	0,46
			Total		**7297**	**504,6**
B5-4	26	1	*Echinarachnius parma*	Echinoidea	110	838,1
B5-4	26	2	*Mactromeris polynyma*	Bivalvia	2	24,17
B5-4	26	3	*Anonyx nugax*	Amphipoda	583	23,33
B5-4	26	4	*Diastylis bidentata*	Cumacea	4106	22,72
B5-4	26	5	*Liocyma fluctuosum*	Bivalvia	2	10,53
B5-4	26	6	*Siliqua alta*	Bivalvia	2	10,13
B5-4	26	7	*Lumbrineris heteropoda*	Polychaeta	11	1,4
B5-4	26	8	*Nemertini gen.sp.*	Nemartina	1	0,07
B5-4	26	9	*Halcampoides purpurea*	Actiniaria	1	0,02
			Total		**4818**	**930,47**
B6-1	53	1	*Ampelisca macrocephala*	Amphipoda	2475	267,65
B6-1	53	2	*Halcampoides purpurea*	Actiniaria	35	197,6
B6-1	53	3	*Ampelisca eschrichti*	Amphipoda	354	180,61
B6-1	53	4	*Wecomedon minusculus*	Amphipoda	1498	130,56

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B6-1	53	5	*Crangon septemspinosa*	Decapoda	3	39,62
B6-1	53	6	*Protomedeia fasciata*	Amphipoda	1206	26,98
B6-1	53	7	*Protomedeia epimerata*	Amphipoda	1394	23,21
B6-1	53	8	*Diastylis bidentata*	Cumacea	2343	22,99
B6-1	53	9	*Nephthys caeca*	Polychaeta	8	19,35
B6-1	53	10	*Liocyma fluctuosum*	Bivalvia	5	14,55
B6-1	53	11	*Anonyx nugax*	Amphipoda	62	7,69
B6-1	53	12	*Melita sp.*	Amphipoda	21	3,77
B6-1	53	13	*Orchomenella pinguis*	Amphipoda	333	3,7
B6-1	53	14	*Bathymedon subcarinatus*	Amphipoda	208	3,26
B6-1	53	15	*Mysella gurjanovae*	Bivalvia	2	2,52
B6-1	53	16	*Glycera capitata*	Polychaeta	13	2,09
B6-1	53	17	*Nemertini gen.sp.*	Nemartina	6	1,65
B6-1	53	18	*Photis sp.*	Amphipoda	62	1,6
B6-1	53	19	*Ampharete sp.*	Polychaeta	1	1,53
B6-1	53	20	*Lumbrineris heteropoda*	Polychaeta	4	1,39
B6-1	53	21	*Anonyx compactus*	Amphipoda	21	1,38
B6-1	53	22	*Pleusymtes sp.*	Amphipoda	125	1,09
B6-1	53	23	*Ischyrocerus sp.*	Amphipoda	42	1,02
B6-1	53	24	*Pholoe sp.*	Polychaeta	4	0,97
B6-1	53	25	*Paraphoxus simplex*	Amphipoda	104	0,8
B6-1	53	26	*Anonyx sp.*	Amphipoda	21	0,73
B6-1	53	27	*Ophelia limacina*	Polychaeta	8	0,7
B6-1	53	28	*Megangulus luteus*	Bivalvia	2	0,37
B6-1	53	29	*Grandifoxus longirostris*	Amphipoda	21	0,36
B6-1	53	30	*Stegophiura nodosa*	Ophiuroidea	8	0,33
B6-1	53	31	*Chaetozone setosa*	Polychaeta	7	0,28
B6-1	53	32	*Glycinde armigera*	Polychaeta	4	0,28
B6-1	53	33	*Praxillella praetermissa*	Polychaeta	1	0,28
			Total		**10401**	**960,91**
B6-2	40	1	*Ampelisca eschrichti*	Amphipoda	2697	372,43
B6-2	40	2	*Ennucula tenuis*	Bivalvia	4	113,33
B6-2	40	3	*Ericthonius tolli*	Amphipoda	1376	27,87
B6-2	40	4	*Photis tenuicornis*	Amphipoda	54	25,57
B6-2	40	5	*Paraphoxus simplex*	Amphipoda	189	23,37
B6-2	40	6	*Bathymedon subcarinatus*	Amphipoda	2050	21,22
B6-2	40	7	*Pleusymtes vasinae*	Amphipoda	2535	10,2
B6-2	40	8	*Melita dentata*	Amphipoda	189	1,35
B6-2	40	9	*Anonyx nugax*	Amphipoda	27	0,3
			Total		**9121**	**595,64**
B6-3	38	1	*Ampelisca macrocephala*	Amphipoda	5880	339,23
B6-3	38	2	*Halcampoides purpurea*	Actiniaria	18	98,81
B6-3	38	3	*Ennucula tenuis*	Bivalvia	6	89,56
B6-3	38	4	*Ampelisca eschrichti*	Amphipoda	622	61,23

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B6-3	38	5	*Protomedeia epimerata*	Amphipoda	522	3,08
B6-3	38	6	*Boeckosinus krassini*	Amphipoda	40	1,4
B6-3	38	7	*Bathymedon subcarinatus*	Amphipoda	181	0,99
B6-3	38	8	*Grandifoxus nasuta*	Amphipoda	120	0,86
B6-3	38	9	*Orchomenella pinguis*	Amphipoda	161	0,69
B6-3	38	10	*Grandifoxus robustus*	Amphipoda	140	0,66
B6-3	38	11	*Anisogammarus pugettensis*	Amphipoda	20	0,66
B6-3	38	12	*Photis sp.*	Amphipoda	140	0,64
B6-3	38	13	*Anonyx compactus*	Amphipoda	100	0,46
B6-3	38	14	*Paraphoxus simplex*	Amphipoda	1826	0,38
B6-3	38	15	*Monoculodes sp.*	Amphipoda	20	0,03
			Total		**9796**	**598,68**
B6-4	31	1	*Diastylis bidentata*	Cumacea	87046	457,03
B6-4	31	2	*Echinarachnius parma*	Echinoidea	46	117,62
B6-4	31	3	*Halcampoides purpurea*	Actiniaria	31	80,87
B6-4	31	4	*Chiridota ochotensis*	Holoturioidea	16	58,03
B6-4	31	5	*Buccinum middendorffi*	Gastropoda	3	29,87
B6-4	31	6	*Crangon septemspinosa*	Decapoda	3	25,05
B6-4	31	7	*Macoma calcarea*	Bivalvia	4	11,3
B6-4	31	8	*Anonyx nugax*	Polychaeta	43	9,99
B6-4	31	9	*Stegophiura nodosa*	Ophiuroidea	1	0,64
B6-4	31	10	*Macoma loveni*	Bivalvia	2	0,28
B6-4	31	11	*Anonyx compactus*	Amphipoda	3	0,19
B6-4	31	12	*Nemertini gen.sp.*	Nemartina	1	0,14
B6-4	31	13	*Ammodytes hexapterus*	Pisces	1	0,12
B6-4	31	14	*Phascolosoma margaritacea*	Sipunculida	1	0,1
			Total		**87201**	**791,23**
B7-1	48	1	*Ampelisca eschrichti*	Amphipoda	9574	579,63
B7-1	48	2	*Halcampoides purpurea*	Actiniaria	56	174,88
B7-1	48	3	*Anonyx nugax*	Amphipoda	1074	146,5
B7-1	48	4	*Diastylis bidentata*	Cumacea	4206	32,48
B7-1	48	5	*Wecomedon minusculus*	Amphipoda	1473	28,51
B7-1	48	6	*Echinarachnius parma*	Echinoidea	5	3,72
B7-1	48	7	*Orchomenella pinguis*	Amphipoda	491	2,77
B7-1	48	8	*Eohaustorius eous eous*	Amphipoda	368	1,98
B7-1	48	9	*Monoculodes zernovi*	Amphipoda	460	1,15
B7-1	48	10	*Grandifoxus longirostris*	Amphipoda	245	0,99
B7-1	48	11	*Grandifoxus robustus*	Amphipoda	123	0,79
B7-1	48	12	*Acanthostepheia beringiensis*	Amphipoda	31	0,48
B7-1	48	13	*Pleusymtes vasinae*	Amphipoda	31	0,48
			Total		**18137**	**974,35**
B7-2	45	1	*Ampelisca eschrichti*	Amphipoda	5398	329,25
B7-2	45	2	*Halcampoides purpurea*	Actiniaria	38	148,78
B7-2	45	3	*Ennucula tenuis*	Bivalvia	2	17,37

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B7-2	45	4	*Ampharete sp.*	Polychaeta	7	13,12
B7-2	45	5	*Diastylis bidentata*	Cumacea	716	9,74
B7-2	45	6	*Nephthys caeca*	Polychaeta	14	4,88
B7-2	45	7	*Paraphoxus simplex*	Amphipoda	93	4,5
B7-2	45	8	*Ampelisca macrocephala*	Amphipoda	33	3,62
B7-2	45	9	*Glycera capitata*	Polychaeta	7	3,1
B7-2	45	10	*Liocyma fluctuosum*	Bivalvia	2	2,93
B7-2	45	11	*Megangulus luteus*	Bivalvia	3	2,05
B7-2	45	12	*Bathymedon subcarinatus*	Amphipoda	660	1,86
B7-2	45	13	*Glycinde armigera*	Polychaeta	7	1,15
B7-2	45	14	*Mya sp.*	Bivalvia	5	1,12
B7-2	45	15	*Pleusymtes vasinae*	Amphipoda	913	0,91
B7-2	45	16	*Ericthonius tolli*	Amphipoda	120	0,53
B7-2	45	17	*Arctolembos arcticus*	Amphipoda	73	0,25
B7-2	45	18	*Anonyx lilljeborgi*	Amphipoda	33	0,11
B7-2	45	19	*Orchomene sp.*	Amphipoda	20	0,08
B7-2	45	20	*Stegophiura nodosa*	Ophiuroidea	0	0,03
B7-2	45	21	*Anonyx pavlovskii*	Amphipoda	7	0,01
			Total		**8151**	**545,39**
B7-3	43	1	*Ampelisca eschrichti*	Amphipoda	1745	435,26
B7-3	43	2	*Halcampoides purpurea*	Actiniaria	46	140,62
B7-3	43	3	*Ennucula tenuis*	Bivalvia	2	97,5
B7-3	43	4	*Ampelisca macrocephala*	Amphipoda	880	76,30
B7-3	43	5	*Lumbrineris heteropoda*	Polychaeta	54	14,16
B7-3	43	6	*Protomedeia fasciata*	Amphipoda	211	12,95
B7-3	43	7	*Diastylis bidentata*	Cumacea	1235	10,59
B7-3	43	8	*Glycera capitata*	Polychaeta	18	10,3
B7-3	43	9	*Pholoe longa*	Polychaeta	18	3,65
B7-3	43	10	*Liocyma fluctuosum*	Bivalvia	2	3,08
B7-3	43	11	*Praxillella praetermissa*	Polychaeta	18	3
B7-3	43	12	*Anonyx compactus*	Amphipoda	37	2,41
B7-3	43	13	*Scoloplos armiger*	Polychaeta	7	2,15
B7-3	43	14	*Spio filicornis*	Polychaeta	7	2,15
B7-3	43	15	*Ophelia limacina*	Polychaeta	14	2,15
B7-3	43	16	*Boeckosimus krassini*	Amphipoda	43	2,10
B7-3	43	17	*Nephthys caeca*	Polychaeta	11	1,72
B7-3	43	18	*Nemertini gen.sp.*	Nemartina	1	1,68
B7-3	43	19	*Photis sp.*	Amphipoda	270	1,61
B7-3	43	20	*Wecomedon minusculus*	Amphipoda	9	0,88
B7-3	43	21	*Nephthys sp.*	Polychaeta	18	0,86
B7-3	43	22	*Melita sp.*	Amphipoda	12	0,83
B7-3	43	23	*Anonyx pavlovskii*	Amphipoda	6	0,83
B7-3	43	24	*Grandifoxus robustus*	Amphipoda	71	0,67
B7-3	43	25	*Macoma cuneipyga*	Bivalvia	2	0,55

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B7-3	43	26	*Crenella decussata*	Bivalvia	7	0,52
B7-3	43	27	*Anonyx sp.*	Amphipoda	9	0,47
B7-3	43	28	*Orchomenella pinguis*	Amphipoda	65	0,46
B7-3	43	29	*Megangulus luteus*	Bivalvia	2	0,32
B7-3	43	30	*Bathymedon subcarinatus*	Amphipoda	19	0,19
B7-3	43	31	*Grandifoxus nasuta*	Amphipoda	12	0,18
B7-3	43	32	*Paraphoxus simplex*	Amphipoda	96	0,15
B7-3	43	33	*Anonyx anivae*	Amphipoda	6	0,14
B7-3	43	34	*Anonyx lilljeborgi*	Amphipoda	3	0,10
B7-3	43	35	*Mya sp.*	Bivalvia	2	0,08
B7-3	43	36	*Syrrhoe crenulata*	Amphipoda	3	0,07
B7-3	43	37	*Pleusymtes sp.*	Amphipoda	12	0,07
B7-3	43	38	*Grandifoxus longirostris*	Amphipoda	12	0,07
B7-3	43	39	*Stegophiura nodosa*	Ophiuroidea	1	0,04
			Total		**4986**	**830,86**
B7-4	36	1	*Halcampoides purpurea*	Actiniaria	391	452,97
B7-4	36	2	*Ampelisca eschrichti*	Amphipoda	764	317,52
B7-4	36	3	*Crangon septemspinosa*	Decapoda	38	132,35
B7-4	36	4	*Mya sp.*	Bivalvia	17	38,92
B7-4	36	5	*Diastylis bidentata*	Cumacea	7240	16,37
B7-4	36	6	*Photis tenuicornis*	Amphipoda	868	14,89
B7-4	36	7	*Bispira sp.*	Polychaeta	13	8,72
B7-4	36	8	*Macra loveni*	Amphipoda	9	5,1
B7-4	36	9	*Stegophiura nodosa*	Ophiuroidea	0	4,89
B7-4	36	10	*Ampelisca macrocephala*	Amphipoda	0	4,34
B7-4	36	11	*Ericthonius tolli*	Amphipoda	19	0,8
B7-4	36	12	*Crenella decussata*	Bivalvia	7	0,38
B7-4	36	13	*Protomedeia fasciata*	Amphipoda	2	0,25
			Total		**9368**	**997,5**
B8-1	51	1	*Ampelisca eschrichti*	Amphipoda	1065	553,68
B8-1	51	2	*Ampelisca macrocephala*	Amphipoda	192	192,83
B8-1	51	3	*Halcampoides purpurea*	Actiniaria	142	189,91
B8-1	51	4	*Macoma calcarea*	Bivalvia	8	178,67
B8-1	51	5	*Diastylis bidentata*	Cumacea	32223	87,8
B8-1	51	6	*Ennucula tenuis*	Bivalvia	2	70,33
B8-1	51	7	*Mya sp.*	Bivalvia	12	28,92
B8-1	51	8	*Protomedeia fasciata*	Amphipoda	68	12,85
B8-1	51	9	*Glycera capitata*	Polychaeta	8	7,12
B8-1	51	10	*Protomedeia epimerata*	Amphipoda	149	6,18
B8-1	51	11	*Crangon septemspinosa*	Decapoda	3	6,15
B8-1	51	12	*Macra loveni*	Amphipoda	10	6,12
B8-1	51	13	*Ericthonius tolli*	Amphipoda	148	5,45
B8-1	51	14	*Arctolembos arcticus*	Amphipoda	1	5,21
B8-1	51	15	*Neptunea bulbacea*	Gastropoda	1	3,5

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B8-1	51	16	*Praxillella praetermissa*	Polychaeta	7	3,11
B8-1	51	17	*Boeckosimus krassini*	Amphipoda	10	2,39
B8-1	51	18	*Megangulus luteus*	Bivalvia	28	2,35
B8-1	51	19	*Anonyx compactus*	Amphipoda	6	2
B8-1	51	20	*Spiophanes bombyx*	Polychaeta	3	1,57
B8-1	51	21	*Photis vinogradovi*	Amphipoda	93	1,37
B8-1	51	22	*Photis sp.*	Amphipoda	46	1,34
B8-1	51	23	*Spio filicornis*	Polychaeta	3	1,2
B8-1	51	24	*Melita sp.*	Amphipoda	4	0,99
B8-1	51	25	*Socarnes bidenticulatus*	Amphipoda	1	0,92
B8-1	51	26	*Pholoe longa*	Polychaeta	1	0,79
B8-1	51	27	*Glycinde armigera*	Polychaeta	1	0,75
B8-1	51	28	*Wecomedon minusculus*	Amphipoda	2	0,73
B8-1	51	29	*Anonyx pavlovskii*	Amphipoda	1	0,69
B8-1	51	30	*Grandifoxus robustus*	Amphipoda	12	0,55
B8-1	51	31	*Anonyx nugax*	Amphipoda	1	0,46
B8-1	51	32	*Orchomenella pinguis*	Amphipoda	14	0,45
B8-1	51	33	*Ischyrocerus sp.*	Amphipoda	22	0,43
B8-1	51	34	*Anonyx sp.*	Amphipoda	2	0,39
B8-1	51	35	*Scoloplos armiger*	Polychaeta	1	0,3
B8-1	51	36	*Bathymedon subcarinatus*	Amphipoda	3	0,15
B8-1	51	37	*Pleusymtes vasinae*	Amphipoda	1	0,15
B8-1	51	38	*Grandifoxus nasuta*	Amphipoda	2	0,15
B8-1	51	39	*Paraphoxus simplex*	Amphipoda	16	0,13
B8-1	51	40	*Anonyx anivae*	Amphipoda	1	0,11
B8-1	51	41	*Anonyx lilljeborgi*	Amphipoda	1	0,09
B8-1	51	42	*Syrrhoe crenulata*	Amphipoda	1	0,06
B8-1	51	43	*Pleusymtes sp.*	Amphipoda	4	0,03
B8-1	51	44	*Astarte arctica*	Bivalvia	5	0,02
B8-1	51	45	*Lepidepecreum kasatka*	Amphipoda	1	0,02
B8-1	51	46	*Crenella decussata*	Bivalvia	2	0,01
B8-1	51	47	*Grandifoxus longirostris*	Amphipoda	1	0,01
			Total		**34328**	**1378,43**
B8-2	48	1	*Ampelisca eschrichti*	Amphipoda	12616	711,72
B8-2	48	2	*Halcampoides purpurea*	Actiniaria	11	68,2
B8-2	48	3	*Anonyx nugax*	Amphipoda	1134	45,19
B8-2	48	4	*Wecomedon minusculus*	Amphipoda	1334	19,9
B8-2	48	5	*Glycera capitata*	Polychaeta	19	4,42
B8-2	48	6	*Bispira sp.*	Polychaeta	7	4,36
B8-2	48	7	*Diastylis bidentata*	Cumacea	331	4,22
B8-2	48	8	*Praxillella praetermissa*	Polychaeta	11	4
B8-2	48	9	*Monoculodes zernovi*	Amphipoda	1034	2,76
B8-2	48	10	*Pleusymtes vasinae*	Amphipoda	234	2,5
B8-2	48	11	*Glycinde armigera*	Polychaeta	3	1,97

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B8-2	48	12	*Ampelisca macrocephala*	Amphipoda	33	1,42
B8-2	48	13	*Mya sp.*	Bivalvia	2	0,68
B8-2	48	14	*Grandifoxus longirostris*	Amphipoda	100	0,57
B8-2	48	15	*Bathymedon sp.*	Amphipoda	133	0,57
B8-2	48	16	*Eohaustorius eous eous*	Amphipoda	220	0,45
B8-2	48	17	*Orchomenella pinguis*	Amphipoda	180	0,34
B8-2	48	18	*Ischyrocerus anguipes*	Amphipoda	33	0,34
B8-2	48	19	*Pleusymtes sp.*	Amphipoda	67	0,34
B8-2	48	20	*Spiophanes bombyx*	Polychaeta	7	0,11
B8-2	48	21	*Spio filicornis*	Polychaeta	10	0,09
B8-2	48	22	*Pholoe longa*	Polychaeta	1	0,04
B8-2	48	23	*Yoldia sp.*	Bivalvia	2	0,03
B8-2	48	24	*Ampharete sp.*	Polychaeta	3	0,01
B8-2	48	25	*Scoloplos armiger*	Polychaeta	1	0,01
			Total		**17526**	**874,24**
B8-3	43	1	*Ampelisca eschrichti*	Amphipoda	800	318,86
B8-3	43	2	*Bispira sp.*	Polychaeta	426	282,5
B8-3	43	3	*Ampelisca macrocephala*	Amphipoda	764	182,84
B8-3	43	4	*Halcampoides purpurea*	Actiniaria	111	157,83
B8-3	43	5	*Anonyx nugax*	Amphipoda	126	41,59
B8-3	43	6	*Wecomedon minusculus*	Amphipoda	285	27,1
B8-3	43	7	*Crangon septemspinosa*	Decapoda	5	16,97
B8-3	43	8	*Protomedeia fasciata*	Amphipoda	355	14,84
B8-3	43	9	*Photis reinhardi*	Amphipoda	502	12,69
B8-3	43	10	*Mya sp.*	Bivalvia	8	12,5
B8-3	43	11	*Buccinum sakhalinense*	Gastropoda	1	8,05
B8-3	43	12	*Yoldia myalis*	Bivalvia	7	7,8
B8-3	43	13	*Diastylis bidentata*	Cumacea	775	6,37
B8-3	43	14	*Protomedeia epimerata*	Amphipoda	142	3,77
B8-3	43	15	*Bathymedon subcarinatus*	Amphipoda	111	2,23
B8-3	43	16	*Liocyma fluctuosum*	Bivalvia	2	1,95
B8-3	43	17	*Anonyx sp.*	Amphipoda	8	1,46
B8-3	43	18	*Orchomenella pinguis*	Amphipoda	82	1,2
B8-3	43	19	*Anonyx pavlovskii*	Amphipoda	2	1,2
B8-3	43	20	*Monoculodes zernovi*	Amphipoda	64	0,94
B8-3	43	21	*Paraphoxus simplex*	Amphipoda	164	0,86
B8-3	43	22	*Eohaustorius eous eous*	Amphipoda	26	0,77
B8-3	43	23	*Pleusymtes vasinae*	Amphipoda	13	0,69
B8-3	43	24	*Grandifoxus robustus*	Amphipoda	31	0,69
B8-3	43	25	*Boeckosinus krassini*	Amphipoda	10	0,69
B8-3	43	26	*Grandifoxus longirostris*	Amphipoda	26	0,51
B8-3	43	27	*Grandifoxus nasuta*	Amphipoda	18	0,51
B8-3	43	28	*Anonyx compactus*	Amphipoda	8	0,43
B8-3	43	29	*Photis sp.*	Amphipoda	15	0,34

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B8-3	43	30	*Ischyrocerus sp.*	Amphipoda	16	0,26
B8-3	43	31	*Melita sp.*	Amphipoda	2	0,26
B8-3	43	32	*Pleusymtes sp.*	Amphipoda	15	0,17
B8-3	43	33	*Parapleustes sp.*	Amphipoda	7	0,17
B8-3	43	34	*Bathymedon langsdorfi*	Amphipoda	3	0,13
B8-3	43	35	*Bathymedon sp.*	Amphipoda	3	0,09
B8-3	43	36	*Acanthostepheia beringiensis*	Amphipoda	2	0,09
B8-3	43	37	*Anisogammarus pugettensis*	Amphipoda	2	0,09
B8-3	43	38	*Jyrrhoe crenulata*	Amphipoda	2	0,02
B8-3	43	39	*Eyakia simplex*	Amphipoda	3	0,01
			Total		**4942**	**1109,47**
B8-4	41	1	*Echinarachnius parma*	Echinoidea	75	239,3
B8-4	41	2	*Anonyx nugax*	Amphipoda	414	106,61
B8-4	41	3	*Monoculodes zernovi*	Amphipoda	569	23,05
B8-4	41	4	*Wecomedon minusculus*	Amphipoda	159	18,01
B8-4	41	5	*Ampelisca eschrichti*	Amphipoda	32	4,32
B8-4	41	6	*Ampelisca macrocephala*	Amphipoda	18	4,32
B8-4	41	7	*Grandifoxus longirostris*	Amphipoda	50	1,62
B8-4	41	8	*Pleusymtes vasinae*	Amphipoda	27	1,4
B8-4	41	9	*Bathymedon subcarinatus*	Amphipoda	18	0,94
B8-4	41	10	*Bathymedon langsdorfi*	Amphipoda	14	0,79
B8-4	41	11	*Orchomenella pinguis*	Amphipoda	32	0,65
B8-4	41	12	*Eohaustorius eous eous*	Amphipoda	27	0,54
B8-4	41	13	*Protomedeia epimerata*	Amphipoda	5	0,32
B8-4	41	14	*Ischyrocerus sp.*	Amphipoda	5	0,32
			Total		**1445**	**402,19**
B9-1	54	1	*Ampelisca eschrichti*	Amphipoda	8158	763,17
B9-1	54	2	*Halcampoides purpurea*	Actiniaria	201	263,36
B9-1	54	3	*Liocyma fluctuosum*	Bivalvia	9	85,5
B9-1	54	4	*Anonyx nugax*	Amphipoda	629	78,57
B9-1	54	5	*Photis reinhardi*	Amphipoda	9155	72,09
B9-1	54	6	*Yoldia myalis*	Bivalvia	26	40,29
B9-1	54	7	*Wecomedon minusculus*	Amphipoda	270	22,03
B9-1	54	8	*Protomedeia fasciata*	Amphipoda	834	8,75
B9-1	54	9	*Anonyx sp.*	Amphipoda	98	7,78
B9-1	54	10	*Protomedeia epimerata*	Amphipoda	711	7,13
B9-1	54	11	*Bathymedon subcarinatus*	Amphipoda	556	4,21
B9-1	54	12	*Anonyx pavlovskii*	Amphipoda	8	2,27
B9-1	54	13	*Orchomenella pinguis*	Amphipoda	409	2,27
B9-1	54	14	*Paraphoxus simplex*	Amphipoda	817	1,62
B9-1	54	15	*Eohaustorius eous eous*	Amphipoda	131	1,46
B9-1	54	16	*Boeckosinus krassini*	Amphipoda	49	1,3
B9-1	54	17	*Grandifoxus robustus*	Amphipoda	155	1,3
B9-1	54	18	*Grandifoxus nasuta*	Amphipoda	90	0,97

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B9-1	54	19	*Grandifoxus longirostris*	Amphipoda	131	0,97
B9-1	54	20	*Anonyx compactus*	Amphipoda	41	0,81
B9-1	54	21	*Photis sp.*	Amphipoda	74	0,65
B9-1	54	22	*Ischyrocerus sp.*	Amphipoda	82	0,49
B9-1	54	23	*Pleusymtes sp.*	Amphipoda	74	0,32
B9-1	54	24	*Anisogammarus pugettensis*	Amphipoda	8	0,16
			Total		**22716**	**1367,47**
B9-2	50	1	*Ampelisca eschrichti*	Amphipoda	12920	1156,3
B9-2	50	2	*Halcampoides purpurea*	Actiniaria	97	154,05
B9-2	50	3	*Liocyma fluctuosum*	Bivalvia	35	123,87
B9-2	50	4	*Protomedeia fasciata*	Amphipoda	11484	54,93
B9-2	50	5	*Diastylis bidentata*	Cumacea	1150	36,44
B9-2	50	6	*Boeckosimus krassini*	Amphipoda	1091	12,73
B9-2	50	7	*Grandifoxus robustus*	Amphipoda	1818	3,5
B9-2	50	8	*Anonyx sp.*	Amphipoda	91	2,68
B9-2	50	9	*Anonyx pavlovskii*	Amphipoda	91	1,81
B9-2	50	10	*Orchomenella pinguis*	Amphipoda	727	1,25
B9-2	50	11	*Bathymedon subcarinatus*	Amphipoda	455	1,08
B9-2	50	12	*Paraphoxus simplex*	Amphipoda	1273	0,86
B9-2	50	13	*Photis sp.*	Amphipoda	1364	0,82
B9-2	50	14	*Anonyx lilljeborgi*	Amphipoda	97	0,65
B9-2	50	15	*Syrrhoe crenulata*	Amphipoda	68	0,43
			Total		**32761**	**1551,4**
B9-3	48	1	*Ampelisca eschrichti*	Amphipoda	4979	733,22
B9-3	48	2	*Halcampoides purpurea*	Actiniaria	35	136,02
B9-3	48	3	*Crangon septemspinosa*	Decapoda	5	26,55
B9-3	48	4	*Glycera capitata*	Polychaeta	18	15,81
B9-3	48	5	*Liocyma fluctuosum*	Bivalvia	2	12,52
B9-3	48	6	*Paraphoxus simplex*	Amphipoda	86	10,03
B9-3	48	7	*Pholoe longa*	Polychaeta	6	8,41
B9-3	48	8	*Melita sp.*	Amphipoda	31	8,06
B9-3	48	9	*Yoldia myalis*	Bivalvia	7	5,9
B9-3	48	10	*Chaetozone setosa*	Polychaeta	18	4,71
B9-3	48	11	*Lumbrineris heteropoda*	Polychaeta	6	4,37
B9-3	48	12	*Glycinde armigera*	Polychaeta	12	4,37
B9-3	48	13	*Bathymedon subcarinatus*	Amphipoda	609	4,15
B9-3	48	14	*Phascolosoma margaritacea*	Sipunculida	1	3,23
B9-3	48	15	*Nephthys caeca*	Polychaeta	6	3,03
B9-3	48	16	*Ophelia limacina*	Polychaeta	12	2,02
B9-3	48	17	*Pleusymtes vasinae*	Amphipoda	842	2,02
B9-3	48	18	*Ericthonius tolli*	Amphipoda	111	1,19
B9-3	48	19	*Arctolembos arcticus*	Amphipoda	68	0,56
B9-3	48	20	*Diastylis bidentata*	Cumacea	80	0,54
B9-3	48	21	*Crenella decussata*	Bivalvia	2	0,27

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
B9-3	48	22	*Anonyx lilljeborgi*	Amphipoda	31	0,25
B9-3	48	23	*Anonyx pavlovskii*	Amphipoda	6	0,03
			Total		**6973**	**987,26**
B9-4	45	1	*Halcampoides purpurea*	Actiniaria	215	303,07
B9-4	45	2	*Ampelisca eschrichti*	Amphipoda	469	93,18
B9-4	45	3	*Mya sp.*	Bivalvia	28	63,47
B9-4	45	4	*Ampelisca macrocephala*	Amphipoda	417	47,89
B9-4	45	5	*Liocyma fluctuosum*	Bivalvia	2	31,35
B9-4	45	6	*Wecomedon minusculus*	Amphipoda	292	14,87
B9-4	45	7	*Protomedeia fasciata*	Amphipoda	561	14,02
B9-4	45	8	*Buccinum sakhalinense*	Gastropoda	1	13,15
B9-4	45	9	*Yoldia seminuda*	Bivalvia	8	7,55
B9-4	45	10	*Diastylis bidentata*	Cumacea	936	6,73
B9-4	45	11	*Yoldia myalis*	Bivalvia	10	4,93
B9-4	45	12	*Chiridota ochotensis*	Holoturioidea	1	4,13
B9-4	45	13	*Glycera capitata*	Polychaeta	43	3,7
B9-4	45	14	*Protomedeia epimerata*	Amphipoda	161	2,69
B9-4	45	15	*Bathymedon subcarinatus*	Amphipoda	152	1,72
B9-4	45	16	*Anonyx nugax*	Amphipoda	28	1,39
B9-4	45	17	*Orchomenella pinguis*	Amphipoda	70	0,54
B9-4	45	18	*Crenella decussata*	Bivalvia	2	0,5
B9-4	45	19	*Megangulus luteus*	Bivalvia	2	0,5
B9-4	45	20	*Nemertini gen.sp.*	Nemartina	1	0,42
B9-4	45	21	*Eohaustorius eous eous*	Amphipoda	7	0,39
B9-4	45	22	*Anonyx compactus*	Amphipoda	7	0,33
B9-4	45	23	*Paraphoxus simplex*	Amphipoda	49	0,3
B9-4	45	24	*Melita sp.*	Amphipoda	2	0,27
B9-4	45	25	*Photis sp.*	Amphipoda	15	0,21
B9-4	45	26	*Ischyrocerus sp.*	Amphipoda	20	0,21
B9-4	45	27	*Crangon septemspinosa*	Decapoda	5	0,18
B9-4	45	28	*Grandifoxus nasuta*	Amphipoda	12	0,18
B9-4	45	29	*Pleusymtes sp.*	Amphipoda	24	0,15
B9-4	45	30	*Parapleustes sp.*	Amphipoda	13	0,15
B9-4	45	31	*Ammodytes hexapterus*	Pisces	1	0,13
B9-4	45	32	*Grandifoxus robustus*	Amphipoda	8	0,12
B9-4	45	33	*Anonyx sp.*	Amphipoda	2	0,06
B9-4	45	34	*Grandifoxus longirostris*	Amphipoda	7	0,06
B9-4	45	35	*Jyrrhoe crenulata*	Amphipoda	2	0,06
B9-4	45	36	*Eyakia simplex*	Amphipoda	5	0,06
B9-4	45	37	*Photis fischmanni*	Amphipoda	3	0,03
B9-4	45	38	*Metopa sp.*	Amphipoda	2	0,03
B9-4	45	39	*Astarte arctica*	Bivalvia	5	0,02
			Total		**3588**	**618,74**

Appendix 6.

Table A6.2. Species composition and quantitative characteristics of benthos (colony density – A, spec./m^2; biomass – B, g/m^2) at stations of the a gray whale Feeding Points in the Offshore Area.

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-03	45	1	*Halcampoides purpurea*	Actiniaria	135	256,39
FP-03	45	2	*Ampelisca eschrichti*	Amphipoda	3187	163,23
FP-03	45	3	*Ampelisca macrocephala*	Amphipoda	2097	148,25
FP-03	45	4	*Nephthys caeca*	Polychaeta	5	18,02
FP-03	45	5	*Echinarachnius parma*	Echinoidea	1	12,13
FP-03	45	6	*Protomedeia fasciata*	Amphipoda	595	9,23
FP-03	45	7	*Protomedeia epimerata*	Amphipoda	2492	5,31
FP-03	45	8	*Macoma calcarea*	Bivalvia	7	5,07
FP-03	45	9	*Crangon septemspinosa*	Decapoda	11	3,94
FP-03	45	10	*Buccinum lichkeanum*	Gastropoda	1	3,18
FP-03	45	11	*Diastylis bidentata*	Cumacea	211	2,22
FP-03	45	12	*Anonyx compactus*	Amphipoda	105	1,71
FP-03	45	13	*Boeckosimus krassini*	Amphipoda	121	1,5
FP-03	45	14	*Photis sp.*	Amphipoda	764	1,15
FP-03	45	15	*Phascolosoma margaritacea*	Sipunculida	3	0,92
FP-03	45	16	*Demonax fullo*	Polychaeta	11	0,84
FP-03	45	17	*Nephthys longosetosa*	Polychaeta	7	0,72
FP-03	45	18	*Macoma sp.*	Bivalvia	7	0,67
FP-03	45	19	*Wecomedon minusculus*	Amphipoda	26	0,62
FP-03	45	20	*Melita sp.*	Amphipoda	37	0,59
FP-03	45	21	*Anonyx pavlovskii*	Amphipoda	16	0,59
FP-03	45	22	*Mya sp.*	Bivalvia	2	0,55
FP-03	45	23	*Grandifoxus robustus*	Amphipoda	200	0,47
FP-03	45	24	*Orchomenella pinguis*	Amphipoda	184	0,32
FP-03	45	25	*Anonyx sp.*	Amphipoda	26	0,32
FP-03	45	26	*Bathymedon subcarinatus*	Amphipoda	53	0,15
FP-03	45	27	*Grandifoxus nasuta*	Amphipoda	37	0,12
FP-03	45	28	*Paraphoxus simplex*	Amphipoda	274	0,12
FP-03	45	29	*Anonyx anivae*	Amphipoda	16	0,09
FP-03	45	30	*Anonyx lilljeborgi*	Amphipoda	11	0,09
FP-03	45	31	*Syrrhoe crenulata*	Amphipoda	11	0,06
FP-03	45	32	*Liocyma fluctuosum*	Bivalvia	2	0,03
FP-03	45	33	*Pleusymtes sp.*	Amphipoda	37	0,03
			Total		**10692**	**638,63**

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-09	49	1	*Ampelisca eschrichti*	Amphipoda	1478	221,84
FP-09	49	2	*Halcampoides purpurea*	Actiniaria	86	86,65
FP-09	49	3	*Crangon septemspinosa*	Decapoda	18	26,91
FP-09	49	4	*Photis tenuicornis*	Amphipoda	1833	8,72
FP-09	49	5	*Lumbrineris heteropoda*	Polychaeta	5	6,89
FP-09	49	6	*Anonyx nugax*	Amphipoda	2	6,66
FP-09	49	7	*Chiridota ochotensis*	Holoturioidea	5	6,42
FP-09	49	8	*Macra loveni*	Amphipoda	18	3,51
FP-09	49	9	*Ericthonius tolli*	Amphipoda	247	3,36
FP-09	49	10	*Macoma calcarea*	Bivalvia	1	3,25
FP-09	49	11	*Demonax fullo*	Polychaeta	10	2,05
FP-09	49	12	*Protomedeia fasciata*	Amphipoda	62	2,04
FP-09	49	13	*Ampelisca macrocephala*	Amphipoda	3	1,39
FP-09	49	14	*Photis vinogradovi*	Amphipoda	229	1,15
FP-09	49	15	*Nephthys longosetosa*	Polychaeta	5	0,92
FP-09	49	16	*Paradiopatra fauchaldi*	Polychaeta	5	0,51
FP-09	49	17	*Boeckosimus krassini*	Amphipoda	6	0,49
FP-09	49	18	*Ischyrocerus sp.*	Amphipoda	32	0,38
FP-09	49	19	*Diastylis bidentata*	Cumacea	26	0,35
FP-09	49	20	*Ampharete sp.*	Polychaeta	5	0,34
FP-09	49	21	*Praxillella praetermissa*	Polychaeta	40	0,34
FP-09	49	22	*Glycera capitata*	Polychaeta	5	0,21
FP-09	49	23	*Phyllodoce maculata*	Polychaeta	10	0,19
FP-09	49	24	*Melita sp.*	Amphipoda	3	0,15
FP-09	49	25	*Scoloplos armiger*	Polychaeta	10	0,13
FP-09	49	26	*Nemertini gen.sp.*	Nemartina	2	0,12
FP-09	49	27	*Pleusymtes vasinae*	Amphipoda	1	0,07
FP-09	49	28	*Orchomenella pinguis*	Amphipoda	3	0,03
FP-09	49	29	*Orchomene sp.*	Amphipoda	3	0,03
FP-09	49	30	*Spiophanes bombyx*	Polychaeta	5	0,02
FP-09	49	31	*Spio filicornis*	Polychaeta	5	0,02
FP-09	49	32	*Lepidepecreum kasatka*	Amphipoda	1	0,02
			Total		**4154**	**385,16**
FP-10	47	1	*Halcampoides purpurea*	Actiniaria	85	164,78
FP-10	47	2	*Ampelisca eschrichti*	Amphipoda	2790	156,43
FP-10	47	3	*Siliqua alta*	Bivalvia	43	63,97
FP-10	47	4	*Anonyx nugax*	Amphipoda	2540	53,51
FP-10	47	5	*Crangon septemspinosa*	Decapoda	5	26,84

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-10	47	6	*Glycinde armigera*	Polychaeta	11	20,73
FP-10	47	7	*Wecomedon minusculus*	Amphipoda	2698	12,45
FP-10	47	8	*Ammodytes hexapterus*	Pisces	10	10,14
FP-10	47	9	*Diastylis bidentata*	Cumacea	671	6,57
FP-10	47	10	*Phascolosoma margaritacea*	Sipunculida	3	5,28
FP-10	47	11	*Monoculodes zernovi*	Amphipoda	1553	1,25
FP-10	47	12	*Ampelisca macrocephala*	Amphipoda	105	1,09
FP-10	47	13	*Pleusymtes vasinae*	Amphipoda	303	0,93
FP-10	47	14	*Orchomenella pinguis*	Amphipoda	632	0,66
FP-10	47	15	*Grandifoxus longirostris*	Amphipoda	487	0,58
FP-10	47	16	*Eohaustorius eous eous*	Amphipoda	526	0,54
FP-10	47	17	*Bathymedon subcarinatus*	Amphipoda	92	0,16
FP-10	47	18	*Bathymedon langsdorfi*	Amphipoda	66	0,16
FP-10	47	19	*Grandifoxus robustus*	Amphipoda	92	0,12
FP-10	47	20	*Bathymedon sp.*	Amphipoda	92	0,12
FP-10	47	21	*Cylichna consobrina*	Gastropoda	3	0,09
FP-10	47	22	*Protomedeia epimerata*	Amphipoda	26	0,08
FP-10	47	23	*Ischyrocerus sp.*	Amphipoda	26	0,08
FP-10	47	24	*Acanthostepheia beringiensis*	Amphipoda	26	0,08
FP-10	47	25	*Ischyrocerus anguipes*	Amphipoda	2	0,01
			Total		**12887**	**526,65**
FP-11	50	1	*Ampelisca eschrichti*	Amphipoda	4342	142,13
FP-11	50	2	*Halcampoides purpurea*	Actiniaria	21	89,42
FP-11	50	3	*Nephthys longosetosa*	Polychaeta	16	11,23
FP-11	50	4	*Crangon septemspinosa*	Decapoda	3	4,77
FP-11	50	5	*Macoma calcarea*	Bivalvia	3	3,29
FP-11	50	6	*Lumbrineris heteropoda*	Polychaeta	16	2,51
FP-11	50	7	*Wecomedon minusculus*	Amphipoda	72	2,04
FP-11	50	8	*Nephthys caeca*	Polychaeta	31	1,55
FP-11	50	9	*Diastylis bidentata*	Cumacea	206	1,38
FP-11	50	10	*Phascolosoma margaritacea*	Sipunculida	1	0,83
FP-11	50	11	*Anonyx nugax*	Amphipoda	26	0,51
			Total		**4737**	**259,66**
FP-13	53	1	*Ampelisca eschrichti*	Amphipoda	1858	114,83
FP-13	53	2	*Halcampoides purpurea*	Actiniaria	51	107,38
FP-13	53	3	*Ampelisca macrocephala*	Amphipoda	1651	75,13
FP-13	53	4	*Liocyma fluctuosum*	Bivalvia	28	39,82
FP-13	53	5	*Ampharete sp.*	Polychaeta	6	36,57

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-13	53	6	*Lumbrineris heteropoda*	Polychaeta	11	26,6
FP-13	53	7	*Wecomedon minusculus*	Amphipoda	1156	23,32
FP-13	53	8	*Protomedeia fasciata*	Amphipoda	2223	21,99
FP-13	53	9	*Glycera capitata*	Polychaeta	32	8,87
FP-13	53	10	*Pholoe sp.*	Polychaeta	11	7,76
FP-13	53	11	*Phascolosoma margaritacea*	Sipunculida	15	7,37
FP-13	53	12	*Diastylis bidentata*	Cumacea	1968	6,29
FP-13	53	13	*Praxillella praetermissa*	Polychaeta	4	5,54
FP-13	53	14	*Ophelia limacina*	Polychaeta	22	4,43
FP-13	53	15	*Protomedeia epimerata*	Amphipoda	637	4,22
FP-13	53	16	*Bathymedon subcarinatus*	Amphipoda	600	2,7
FP-13	53	17	*Crangon septemspinosa*	Decapoda	1	2,25
FP-13	53	18	*Nephthys caeca*	Polychaeta	11	2,22
FP-13	53	19	*Anonyx nugax*	Amphipoda	110	2,18
FP-13	53	20	*Orchomenella pinguis*	Amphipoda	276	0,85
FP-13	53	21	*Eohaustorius eous eous*	Amphipoda	28	0,62
FP-13	53	22	*Anonyx compactus*	Amphipoda	28	0,52
FP-13	53	23	*Paraphoxus simplex*	Amphipoda	195	0,47
FP-13	53	24	*Melita sp.*	Amphipoda	8	0,43
FP-13	53	25	*Photis sp.*	Amphipoda	61	0,33
FP-13	53	26	*Ischyrocerus sp.*	Amphipoda	81	0,33
FP-13	53	27	*Grandifoxus nasuta*	Amphipoda	49	0,28
FP-13	53	28	*Pleusymtes sp.*	Amphipoda	93	0,24
FP-13	53	29	*Parapleustes sp.*	Amphipoda	53	0,24
FP-13	53	30	*Grandifoxus robustus*	Amphipoda	32	0,19
FP-13	53	31	*Ammodytes hexapterus*	Pisces	1	0,15
FP-13	53	32	*Jyrrhoe crenulata*	Amphipoda	8	0,09
FP-13	53	33	*Grandifoxus longirostris*	Amphipoda	28	0,09
FP-13	53	34	*Eyakia simplex*	Amphipoda	20	0,09
FP-13	53	35	*Anonyx sp.*	Amphipoda	8	0,09
FP-13	53	36	*Photis fischmanni*	Amphipoda	12	0,05
			Total		**11376**	**504,53**
FP-14	51	1	*Ampelisca eschrichti*	Amphipoda	5110	413,08
FP-14	51	2	*Halcampoides purpurea*	Actiniaria	56	226,23
FP-14	51	3	*Ampharete sp.*	Polychaeta	186	127,33
FP-14	51	4	*Photis reinhardi*	Amphipoda	5701	91,64
FP-14	51	5	*Phascolosoma margaritacea*	Sipunculida	91	71,65
FP-14	51	6	*Wecomedon minusculus*	Amphipoda	4093	61,23

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-14	51	7	*Astarte borealis*	Bivalvia	28	46,97
FP-14	51	8	*Crangon septemspinosa*	Decapoda	8	25,78
FP-14	51	9	*Diastylis bidentata*	Cumacea	2813	12,96
FP-14	51	10	*Ammodytes hexapterus*	Pisces	1	6,09
FP-14	51	11	*Orchomenella pinguis*	Amphipoda	66	1,55
FP-14	51	12	*Ischyrocerus anguipes*	Amphipoda	175	1,16
FP-14	51	13	*Anonyx pavlovskii*	Amphipoda	120	1,16
FP-14	51	14	*Eyakia simplex*	Amphipoda	55	0,97
FP-14	51	15	*Grandifoxus nasuta*	Amphipoda	98	0,78
FP-14	51	16	*Bathymedon sp.*	Amphipoda	109	0,58
FP-14	51	17	*Grandifoxus robustus*	Amphipoda	11	0,52
FP-14	51	18	*Metopa sp.*	Amphipoda	98	0,39
FP-14	51	19	*Paraphoxus simplex*	Amphipoda	44	0,31
FP-14	51	20	*Mysella planata*	Bivalvia	3	0,25
FP-14	51	21	*Ischyrocerus sp.*	Amphipoda	22	0,19
FP-14	51	22	*Chiridota ochotensis*	Holoturioidea	1	0,15
FP-14	51	23	*Hiatella arctica*	Bivalvia	2	0,1
			Total		**18891**	**1091,07**
FP-15	52	1	*Ampelisca eschrichti*	Amphipoda	5607	365,73
FP-15	52	2	*Halcampoides purpurea*	Actiniaria	38	183,48
FP-15	52	3	*Ampelisca macrocephala*	Amphipoda	2590	133,23
FP-15	52	4	*Chiridota ochotensis*	Holoturioidea	8	94,18
FP-15	52	5	*Anonyx nugax*	Amphipoda	1255	91,38
FP-15	52	6	*Crangon septemspinosa*	Decapoda	5	54,38
FP-15	52	7	*Ampharete sp.*	Polychaeta	33	13,98
FP-15	52	8	*Diastylis bidentata*	Cumacea	1506	12,13
FP-15	52	9	*Mya truncata*	Bivalvia	2	8,14
FP-15	52	10	*Wecomedon minusculus*	Amphipoda	107	7,25
FP-15	52	11	*Liocyma fluctuosum*	Bivalvia	2	4,57
FP-15	52	12	*Ammodytes hexapterus*	Pisces	3	3,83
FP-15	52	13	*Yoldia myalis*	Bivalvia	5	2,75
FP-15	52	14	*Anonyx sp.*	Amphipoda	27	1,77
FP-15	52	15	*Protomedeia epimerata*	Amphipoda	214	1,51
FP-15	52	16	*Macoma calcarea*	Bivalvia	2	1,12
FP-15	52	17	*Bathymedon subcarinatus*	Amphipoda	240	0,77
FP-15	52	18	*Paraphoxus simplex*	Amphipoda	134	0,63
FP-15	52	19	*Pleusymtes sp.*	Amphipoda	27	0,09
FP-15	52	20	*Grandifoxus robustus*	Amphipoda	27	0,06

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-15	52	21	*Protomedeia fasciata*	Amphipoda	107	0,06
			Total		**11939**	**981,04**
FP-16	48	1	*Ampelisca eschrichti*	Amphipoda	5299	553,73
FP-16	48	2	*Ampelisca macrocephala*	Amphipoda	1918	236,40
FP-16	48	3	*Serripes groenlandicus*	Bivalvia	2	165,15
FP-16	48	4	*Halcampoides purpurea*	Actiniaria	23	145,7
FP-16	48	5	*Photis reinhardi*	Amphipoda	6192	103,27
FP-16	48	6	*Liocyma fluctuosum*	Bivalvia	2	18,7
FP-16	48	7	*Mya truncata*	Bivalvia	2	12,62
FP-16	48	8	*Ampharete sp.*	Polychaeta	6	10,72
FP-16	48	9	*Phascolosoma margaritacea*	Sipunculida	10	4,25
FP-16	48	10	*Wecomedon minusculus*	Amphipoda	47	3,74
FP-16	48	11	*Crangon septemspinosa*	Decapoda	6	3,63
FP-16	48	12	*Boeckosinus krassini*	Amphipoda	76	1,9
FP-16	48	13	*Paraphoxus simplex*	Amphipoda	532	1,88
FP-16	48	14	*Grandifoxus robustus*	Amphipoda	161	1,75
FP-16	48	15	*Protomedeia fasciata*	Amphipoda	266	1,72
FP-16	48	16	*Grandifoxus nasuta*	Amphipoda	66	1,22
FP-16	48	17	*Mya sp.*	Bivalvia	3	1,03
FP-16	48	18	*Bathymedon subcarinatus*	Amphipoda	104	0,64
FP-16	48	19	*Diastylis bidentata*	Cumacea	58	0,42
FP-16	48	20	*Orchomenella pinguis*	Amphipoda	123	0,38
FP-16	48	21	*Grandifoxus longirostris*	Amphipoda	28	0,22
FP-16	48	22	*Eohaustorius eous eous*	Amphipoda	9	0,13
			Total		**14933**	**1269,2**
FP-17	48	1	*Halcampoides purpurea*	Actiniaria	48	291,33
FP-17	48	2	*Ampelisca macrocephala*	Amphipoda	1353	224,6
FP-17	48	3	*Serripes groenlandicus*	Bivalvia	2	147,63
FP-17	48	4	*Ampelisca eschrichti*	Amphipoda	1273	134,23
FP-17	48	5	*Mya truncata*	Bivalvia	2	52,52
FP-17	48	6	*Phascolosoma margaritacea*	Sipunculida	25	51,25
FP-17	48	7	*Wecomedon minusculus*	Amphipoda	1567	47,08
FP-17	48	8	*Travisia forbesii*	Polychaeta	40	22,08
FP-17	48	9	*Neptunea bulbacea*	Gastropoda	1	21,7
FP-17	48	10	*Ammodytes hexapterus*	Pisces	18	6,33
FP-17	48	11	*Anisogammarus pugettensis*	Amphipoda	308	5,73
FP-17	48	12	*Crangon septemspinosa*	Decapoda	5	2,35
FP-17	48	13	*Grandifoxus robustus*	Amphipoda	228	1,91

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-17	48	14	*Liocyma fluctuosum*	Bivalvia	2	1,45
FP-17	48	15	*Macoma calcarea*	Bivalvia	2	1,45
FP-17	48	16	*Bathymedon subcarinatus*	Amphipoda	40	1,4
FP-17	48	17	*Chiridota ochotensis*	Holoturioidea	3	0,8
FP-17	48	18	*Boeckosinus krassini*	Amphipoda	27	0,38
FP-17	48	19	*Mya sp.*	Bivalvia	2	0,25
FP-17	48	20	*Paraphoxus simplex*	Amphipoda	40	0,25
FP-17	48	21	*Anonyx compactus*	Amphipoda	27	0,22
FP-17	48	22	*Photis fischmanni*	Amphipoda	27	0,22
FP-17	48	23	*Macoma sp.*	Bivalvia	2	0,17
FP-17	48	24	*Diastylis bidentata*	Cumacea	8	0,14
			Total		**5050**	**1015,47**
FP-18	54	1	*Ampelisca eschrichti*	Amphipoda	8840	807,43
FP-18	54	2	*Diastylis bidentata*	Cumacea	4381	60,73
FP-18	54	3	*Halcampoides purpurea*	Actiniaria	15	29,85
FP-18	54	4	*Nephthys caeca*	Polychaeta	50	13,55
FP-18	54	5	*Crangon septemspinosa*	Decapoda	8	13,45
FP-18	54	6	*Liocyma fluctuosum*	Bivalvia	1	7,62
FP-18	54	7	*Ammodytes hexapterus*	Pisces	8	5,71
FP-18	54	8	*Orchomenella pinguis*	Amphipoda	453	3,86
FP-18	54	9	*Eohaustorius eous eous*	Amphipoda	340	2,76
FP-18	54	10	*Phascolosoma margaritacea*	Sipunculida	13	1,72
FP-18	54	11	*Grandifoxus longirostris*	Amphipoda	227	1,38
FP-18	54	12	*Grandifoxus robustus*	Amphipoda	113	1,1
			Total		**14449**	**949,16**
FP-19	47	1	*Ampelisca eschrichti*	Amphipoda	1131	161,53
FP-19	47	2	*Halcampoides purpurea*	Actiniaria	25	83,23
FP-19	47	3	*Ampelisca macrocephala*	Amphipoda	1719	81,46
FP-19	47	4	*Serripes groenlandicus*	Bivalvia	2	73,53
FP-19	47	5	*Buccinum sakhalinense*	Gastropoda	1	21,42
FP-19	47	6	*Crangon septemspinosa*	Decapoda	8	20,52
FP-19	47	7	*Diastylis bidentata*	Cumacea	2465	19,11
FP-19	47	8	*Nephthys californiensis*	Polychaeta	19	17,57
FP-19	47	9	*Protomedeia fasciata*	Amphipoda	321	10,06
FP-19	47	10	*Yoldia myalis*	Bivalvia	7	5,45
FP-19	47	11	*Macoma calcarea*	Bivalvia	3	2,28
FP-19	47	12	*Ammodytes hexapterus*	Pisces	5	2,07
FP-19	47	13	*Boeckosimus krassini*	Amphipoda	65	1,64

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-19	47	14	*Mya sp.*	Bivalvia	2	1,32
FP-19	47	15	*Melita sp.*	Amphipoda	20	0,64
FP-19	47	16	*Eteone longa*	Polychaeta	6	0,18
FP-19	47	17	*Macoma sp.*	Bivalvia	3	0,02
FP-19	47	18	*Mysella gurjanovae*	Bivalvia	2	0,01
			Total		**5804**	**502,04**
FP-20	48	1	*Ampelisca eschrichti*	Amphipoda	4270	252,57
FP-20	48	2	*Halcampoides purpurea*	Actiniaria	18	61,62
FP-20	48	3	*Crangon septemspinosa*	Decapoda	25	34,68
FP-20	48	4	*Nephthys caeca*	Polychaeta	22	14,18
FP-20	48	5	*Diastylis bidentata*	Cumacea	515	3,85
FP-20	48	6	*Macoma sp.*	Bivalvia	6	1,26
FP-20	48	7	*Anonyx pavlovskii*	Amphipoda	3	0,2
FP-20	48	8	*Grandifoxus robustus*	Amphipoda	38	0,16
FP-20	48	9	*Bathymedon subcarinatus*	Amphipoda	10	0,05
FP-20	48	10	*Grandifoxus nasuta*	Amphipoda	7	0,04
			Total		**4914**	**368,61**
FP-21	41	1	*Ampelisca eschrichti*	Amphipoda	3258	238,30
FP-21	41	2	*Phascolosoma margaritacea*	Sipunculida	53	41,97
FP-21	41	3	*Wecomedon minusculus*	Amphipoda	2683	36,27
FP-21	41	4	*Anonyx nugax.*	Amphipoda	1377	25,74
FP-21	41	5	*Diastylis bidentata*	Cumacea	1801	16,4
FP-21	41	6	*Demonax fullo*	Polychaeta	21	14,13
FP-21	41	7	*Grandifoxus robustus*	Amphipoda	1080	9,28
FP-21	41	8	*Protomedeia fasciata*	Amphipoda	70	3,12
FP-21	41	9	*Ischyrocerus sp.*	Amphipoda	418	1,91
FP-21	41	10	*Photis sp.*	Amphipoda	122	1,33
FP-21	41	11	*Anisogammarus pugettensis*	Amphipoda	70	1,29
FP-21	41	12	*Metopa sp.*	Amphipoda	139	1,13
FP-21	41	13	*Orchomenella pinguis*	Amphipoda	174	0,98
FP-21	41	14	*Boeckosinus krassini*	Amphipoda	52	0,43
FP-21	41	15	*Eyakia simplex*	Amphipoda	17	0,39
FP-21	41	16	*Ampharete sp.*	Polychaeta	5	0,34
FP-21	41	17	*Photis fischmanni*	Amphipoda	105	0,27
FP-21	41	18	*Pleusymtes vasinae*	Amphipoda	17	0,16
FP-21	41	19	*Scoloplos armiger*	Polychaeta	10	0,13
FP-21	41	20	*Protomedeia epimerata*	Amphipoda	17	0,04
FP-21	41	21	*Spiophanes bombyx*	Polychaeta	5	0,02

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
			Total		**11494**	**393,63**
FP-22	54	1	*Ampelisca eschrichti*	Amphipoda	2369	89,77
FP-22	54	2	*Halcampoides purpurea*	Actiniaria	21	74,26
FP-22	54	3	*Anonyx nugax*	Amphipoda	1280	43,42
FP-22	54	4	*Liocyma fluctuosum*	Bivalvia	8	27,3
FP-22	54	5	*Ampelisca macrocephala*	Amphipoda	654	16,43
FP-22	54	6	*Lumbrineris heteropoda*	Polychaeta	51	10,31
FP-22	54	7	*Wecomedon minusculus*	Amphipoda	1153	8,33
FP-22	54	8	*Diastylis bidentata*	Cumacea	1816	2,67
FP-22	54	9	*Monoculodes zernovi*	Amphipoda	681	0,94
FP-22	54	10	*Grandifoxus longirostris*	Amphipoda	300	0,66
FP-22	54	11	*Pleusymtes vasinae*	Amphipoda	163	0,57
FP-22	54	12	*Bathymedon subcarinatus*	Amphipoda	109	0,38
FP-22	54	13	*Bathymedon langsdorfi*	Amphipoda	82	0,32
FP-22	54	14	*Orchomenella pinguis*	Amphipoda	191	0,26
FP-22	54	15	*Eohaustorius eous eous*	Amphipoda	163	0,22
FP-22	54	16	*Ischyrocerus sp.*	Amphipoda	27	0,13
FP-22	54	17	*Protomedeia epimerata*	Amphipoda	27	0,13
			Total		**9095**	**276,1**
FP-23	52	1	*Ampelisca eschrichti*	Amphipoda	3479	236,26
FP-23	52	2	*Halcampoides purpurea*	Actiniaria	10	152,5
FP-23	52	3	*Nemertini gen.sp.*	Nemartina	40	90,92
FP-23	52	4	*Wecomedon minusculus*	Amphipoda	1875	56,79
FP-23	52	5	*Siliqua alta*	Bivalvia	21	48,2
FP-23	52	6	*Phascolosoma margaritacea*	Sipunculida	151	46,83
FP-23	52	7	*Glycera capitata*	Polychaeta	300	41,92
FP-23	52	8	*Crangon septemspinosa*	Decapoda	10	30
FP-23	52	9	*Protomedeia fasciata*	Amphipoda	2632	19,42
FP-23	52	10	*Ampelisca macrocephala*	Amphipoda	1910	18,81
FP-23	52	11	*Anonyx nugax*	Amphipoda	1507	5,28
FP-23	52	12	*Ammodytes hexapterus*	Pisces	9	3,28
FP-23	52	13	*Grandifoxus longirostris*	Amphipoda	681	0,95
FP-23	52	14	*Photis reinhardi*	Amphipoda	335	0,95
FP-23	52	15	*Photis fischmanni*	Amphipoda	521	0,92
FP-23	52	16	*Orchomenella pinguis*	Amphipoda	99	0,75
FP-23	52	17	*Protomedeia epimerata*	Amphipoda	389	0,7
FP-23	52	18	*Metopa sp.*	Amphipoda	368	0,64
FP-23	52	19	*Bathymedon subcarinatus*	Amphipoda	35	0,52

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-23	52	20	*Pleusymtes vasinae*	Amphipoda	7	0,43
FP-23	52	21	*Monoculodes zernovi*	Amphipoda	181	0,34
FP-23	52	22	*Eyakia simplex*	Amphipoda	694	0,31
FP-23	52	23	*Melita sp.*	Amphipoda	42	0,24
FP-23	52	24	*Diastylis bidentata*	Cumacea	31	0,19
FP-23	52	25	*Pleusymtes sp.*	Amphipoda	76	0,18
FP-23	52	26	*Grandifoxus robustus*	Amphipoda	83	0,15
			Total		**15486**	**757,48**
FP-24	51	1	*Ampelisca eschrichti*	Amphipoda	1154	126,97
FP-24	51	2	*Anonyx nugax*	Amphipoda	24	100,9
FP-24	51	3	*Yoldia myalis*	Bivalvia	12	80,08
FP-24	51	4	*Halcampoides purpurea*	Actiniaria	16	67,73
FP-24	51	5	*Ophelia limacina*	Polychaeta	95	55,16
FP-24	51	6	*Nemertini gen.sp.*	Nemartina	11	32,3
FP-24	51	7	*Photis vinogradovi*	Amphipoda	4279	27,1
FP-24	51	8	*Phascolosoma margaritacea*	Sipunculida	31	21,07
FP-24	51	9	*Ericthonius tolli*	Amphipoda	1058	19,05
FP-24	51	10	*Ammodytes hexapterus*	Pisces	56	12,7
FP-24	51	11	*Crangon septemspinosa*	Decapoda	5	8,32
FP-24	51	12	*Ischyrocerus sp.*	Amphipoda	96	7,03
FP-24	51	13	*Glycera capitata*	Polychaeta	105	5,95
FP-24	51	14	*Protomedeia fasciata*	Amphipoda	120	5,9
FP-24	51	15	*Praxillella praetermissa*	Polychaeta	37	3,97
FP-24	51	16	*Chaetozone setosa*	Polychaeta	37	2,78
FP-24	51	17	*Boeckosimus krassini*	Amphipoda	24	2,61
FP-24	51	18	*Nephthys caeca*	Polychaeta	75	1,98
FP-24	51	19	*Orchomene sp.*	Amphipoda	96	1,59
FP-24	51	20	*Lumbrineris heteropoda*	Polychaeta	62	0,79
FP-24	51	21	*Glycinde armigera*	Polychaeta	12	0,79
FP-24	51	22	*Lepidepecreum kasatka*	Amphipoda	24	0,34
FP-24	51	23	*Diastylis bidentata*	Cumacea	28	0,06
			Total		**7457**	**585,17**
FP-25	54	1	*Ampelisca eschrichti*	Amphipoda	291	351,83
FP-25	54	2	*Serripes groenlandicus*	Bivalvia	6	107,67
FP-25	54	3	*Halcampoides purpurea*	Actiniaria	8	62,5
FP-25	54	4	*Nemertini gen.sp.*	Nemartina	13	43,45
FP-25	54	5	*Crangon septemspinosa*	Decapoda	3	40,42
FP-25	54	6	*Anonyx nugax*	Amphipoda	2740	32,82

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-25	54	7	*Wecomedon minusculus*	Amphipoda	4971	28,01
FP-25	54	8	*Nephthys caeca*	Polychaeta	140	26,95
FP-25	54	9	*Phascolosoma margaritacea*	Sipunculida	11	10,83
FP-25	54	10	*Nephthys sp.*	Polychaeta	62	6,38
FP-25	54	11	*Diastylis bidentata*	Cumacea	908	6,17
FP-25	54	12	*Ammodytes hexapterus*	Pisces	15	4,23
FP-25	54	13	*Ampelisca macrocephala*	Amphipoda	194	2,45
FP-25	54	14	*Grandifoxus robustus*	Amphipoda	170	0,26
FP-25	54	15	*Protomedeia epimerata*	Amphipoda	49	0,18
FP-25	54	16	*Scoloplos armiger*	Polychaeta	55	0,02
			Total		**9636**	**724,17**
FP-26	55	1	*Halcampoides purpurea*	Actiniaria	83	301,68
FP-26	55	2	*Ampelisca eschrichti*	Amphipoda	10653	277,97
FP-26	55	3	*Serripes groenlandicus*	Bivalvia	31	255,52
FP-26	55	4	*Crangon septemspinosa*	Decapoda	8	19,73
FP-26	55	5	*Ophelia limacina*	Polychaeta	45	14,1
FP-26	55	6	*Nephthys caeca*	Polychaeta	96	13,67
FP-26	55	7	*Nemertini gen.sp.*	Nemartina	5	11,08
FP-26	55	8	*Ammodytes hexapterus*	Pisces	15	5,4
			Total		**10936**	**899,15**
FP-27	62	1	*Ampelisca eschrichti*	Amphipoda	8524	465,26
FP-27	62	2	*Halcampoides purpurea*	Actiniaria	68	167,7
FP-27	62	3	*Liocyma fluctuosum*	Bivalvia	8	36,6
FP-27	62	4	*Crangon septemspinosa*	Decapoda	13	33,48
FP-27	62	5	*Protomedeia fasciata*	Amphipoda	965	18,14
FP-27	62	6	*Phyllodoce maculata*	Polychaeta	135	8,83
FP-27	62	7	*Nemertini gen.sp.*	Nemartina	20	7,45
FP-27	62	8	*Anonyx compactus*	Amphipoda	171	3,36
FP-27	62	9	*Boeckosimus krassini*	Amphipoda	196	2,96
FP-27	62	10	*Ammodytes hexapterus*	Pisces	16	2,75
FP-27	62	11	*Melita sp.*	Amphipoda	1238	2,26
FP-27	62	12	*Anonyx pavlovskii*	Amphipoda	43	1,22
FP-27	62	13	*Cryptonatica clausa*	Gastropoda	11	1,2
FP-27	62	14	*Orchomenella pinguis*	Amphipoda	26	1,16
FP-27	62	15	*Grandifoxus robustus*	Amphipoda	60	1,16
FP-27	62	16	*Phascolosoma margaritacea*	Sipunculida	5	1,12
FP-27	62	17	*Anonyx nugax*	Amphipoda	325	0,93
FP-27	62	18	*Syrrhoe crenulata*	Amphipoda	188	0,7

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-27	62	19	*Mya sp.*	Bivalvia	2	0,65
FP-27	62	20	*Grandifoxus nasuta*	Amphipoda	43	0,64
FP-27	62	21	*Bathymedon subcarinatus*	Amphipoda	299	0,64
FP-27	62	22	*Macoma golikovi*	Bivalvia	2	0,58
FP-27	62	23	*Paraphoxus simplex*	Amphipoda	85	0,29
FP-27	62	24	*Anonyx lilljeborgi*	Amphipoda	444	0,23
FP-27	62	25	*Anonyx anivae*	Amphipoda	60	0,23
FP-27	62	26	*Ennucula tenuis*	Bivalvia	2	0,2
FP-27	62	27	*Pleusymtes sp.*	Amphipoda	60	0,06
			Total		**13009**	**759,8**
FP-28	53	1	*Ampelisca eschrichti*	Amphipoda	5515	330,68
FP-28	53	2	*Halcampoides purpurea*	Actiniaria	80	272,65
FP-28	53	3	*Ampelisca macrocephala*	Amphipoda	2261	71,04
FP-28	53	4	*Mactromeris polynyma*	Bivalvia	15	53,08
FP-28	53	5	*Protomedeia fasciata*	Amphipoda	3467	39,97
FP-28	53	6	*Crangon septemspinosa*	Decapoda	6	28,13
FP-28	53	7	*Lumbrineris heteropoda*	Polychaeta	43	13,01
FP-28	53	8	*Eohaustorius eous eous*	Amphipoda	984	3,94
FP-28	53	9	*Anonyx nugax*	Amphipoda	763	2,28
FP-28	53	10	*Jyrrhoe crenulata*	Amphipoda	443	0,95
FP-28	53	11	*Monoculodes sp.*	Amphipoda	184	0,83
FP-28	53	12	*Protomedeia epimerata*	Amphipoda	214	0,74
FP-28	53	13	*Anonyx sp.*	Amphipoda	86	0,68
FP-28	53	14	*Pleusymtes vasinae*	Amphipoda	86	0,68
FP-28	53	15	*Anonyx compactus*	Amphipoda	184	0,56
FP-28	53	16	*Grandifoxus longirostris*	Amphipoda	139	0,44
FP-28	53	17	*Bathymedon subcarinatus*	Amphipoda	113	0,3
FP-28	53	18	*Orchomenella pinguis*	Amphipoda	101	0,18
FP-28	53	19	*Boeckosinus krassini*	Amphipoda	19	0,12
FP-28	53	20	*Bathymedon langsdorfi*	Amphipoda	19	0,12
FP-28	53	21	*Monoculodes zernovi*	Amphipoda	26	0,09
FP-28	53	22	*Bathymedon sp.*	Amphipoda	26	0,09
FP-28	53	23	*Grandifoxus robustus*	Amphipoda	26	0,09
FP-28	53	24	*Melita sp.*	Amphipoda	15	0,06
			Total		**14815**	**820,71**
FP-29	55	1	*Ampelisca eschrichti*	Amphipoda	1570	175,77
FP-29	55	2	*Ampelisca macrocephala*	Amphipoda	103	61,21
FP-29	55	3	*Crangon septemspinosa*	Decapoda	28	38,14

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-29	55	4	*Megangulus luteus*	Bivalvia	53	18,55
FP-29	55	5	*Halcampoides purpurea*	Actiniaria	21	11,78
FP-29	55	6	*Praxillella praetermissa*	Polychaeta	13	11,59
FP-29	55	7	*Ammodytes hexapterus*	Pisces	6	10,16
FP-29	55	8	*Photis tenuicornis*	Amphipoda	571	5,67
FP-29	55	9	*Protomedeia fasciata*	Amphipoda	36	4,08
FP-29	55	10	*Chiridota ochotensis*	Holoturioidea	9	3,02
FP-29	55	11	*Protomedeia epimerata*	Amphipoda	80	1,96
FP-29	55	12	*Macra loveni*	Amphipoda	6	1,94
FP-29	55	13	*Ericthonius tolli*	Amphipoda	79	1,73
FP-29	55	14	*Boeckosimus krassini*	Amphipoda	6	0,76
FP-29	55	15	*Anonyx compactus*	Amphipoda	2	0,61
FP-29	55	16	*Melita sp.*	Amphipoda	1	0,22
FP-29	55	17	*Orchomenella pinguis*	Amphipoda	1	0,03
FP-29	55	18	*Anonyx sp.*	Amphipoda	1	0,01
			Total		**2586**	**347,23**
FP-31	64	1	*Ampelisca eschrichti*	Amphipoda	3961	243,69
FP-31	64	2	*Halcampoides purpurea*	Actiniaria	27	155,17
FP-31	64	3	*Mactromeris polynyma*	Bivalvia	1	25,99
FP-31	64	4	*Lumbrineris heteropoda*	Polychaeta	64	22,16
FP-31	64	5	*Anonyx nugax*	Amphipoda	241	15,47
FP-31	64	6	*Wecomedon minusculus*	Amphipoda	284	6,81
FP-31	64	7	*Crangon septemspinosa*	Decapoda	3	1,41
FP-31	64	8	*Diastylis bidentata*	Cumacea	92	1,06
FP-31	64	9	*Monoculodes zernovi*	Amphipoda	220	0,94
FP-31	64	10	*Pleusymtes vasinae*	Amphipoda	50	0,86
FP-31	64	11	*Ammodytes hexapterus*	Pisces	0	0,82
FP-31	64	12	*Bathymedon subcarinatus*	Amphipoda	7	0,49
FP-31	64	13	*Chiridota ochotensis*	Holoturioidea	0	0,42
FP-31	64	14	*Grandifoxus longirostris*	Amphipoda	21	0,19
			Total		**4971**	**475,48**
FP-32	63	1	*Ampelisca eschrichti*	Amphipoda	1900	168,23
FP-32	63	2	*Serripes groenlandicus*	Bivalvia	1	29,96
FP-32	63	3	*Glycera capitata*	Polychaeta	5	11,26
FP-32	63	4	*Ampelisca macrocephala*	Amphipoda	36	3,33
FP-32	63	5	*Anonyx nugax*	Amphipoda	651	2,82
FP-32	63	6	*Anonyx compactus*	Amphipoda	63	2,66
FP-32	63	7	*Ammodytes hexapterus*	Pisces	2	2,58

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-32	63	8	*Spiophanes bombyx*	Polychaeta	1	1,74
FP-32	63	9	*Protomedeia fasciata*	Amphipoda	27	1,68
FP-32	63	10	*Spio filicornis*	Polychaeta	4	1,64
FP-32	63	11	*Chiridota ochotensis*	Holoturioidea	1	1,43
FP-32	63	12	*Diastylis bidentata*	Cumacea	62	0,79
FP-32	63	13	*Glycinde armigera*	Polychaeta	1	0,61
FP-32	63	14	*Metopa sp.*	Amphipoda	81	0,30
FP-32	63	15	*Eohaustorius eous eous*	Amphipoda	54	0,29
FP-32	63	16	*Orchomenella pinguis*	Amphipoda	63	0,24
FP-32	63	17	*Photis sp.*	Amphipoda	27	0,21
FP-32	63	18	*Ischyrocerus sp.*	Amphipoda	5	0,12
FP-32	63	19	*Protomedeia epimerata*	Amphipoda	11	0,12
FP-32	63	20	*Bathymedon langsdorfi*	Amphipoda	4	0,04
FP-32	63	21	*Monoculodes zernovi*	Amphipoda	13	0,03
FP-32	63	22	*Pleusymtes vasinae*	Amphipoda	36	0,03
FP-32	63	23	*Eyakia simplex*	Amphipoda	9	0,03
FP-32	63	24	*Grandifoxus robustus*	Amphipoda	18	0,01
			Total		**3075**	**230,15**
FP-33	61	1	*Ampelisca eschrichti*	Amphipoda	985	134,03
FP-33	61	2	*Ampelisca macrocephala*	Amphipoda	845	112,92
FP-33	61	3	*Serripes groenlandicus*	Bivalvia	1	25,74
FP-33	61	4	*Anonyx nugax*	Amphipoda	116	16,52
FP-33	61	5	*Buccinum lichkeanum*	Gastropoda	1	13,69
FP-33	61	6	*Phyllodoce maculata*	Polychaeta	28	9,63
FP-33	61	7	*Halcampoides purpurea*	Actiniaria	4	9,45
FP-33	61	8	*Crangon septemspinosa*	Decapoda	5	8,1
FP-33	61	9	*Photis reinhardi*	Amphipoda	133	5,35
FP-33	61	10	*Wecomedon minusculus*	Amphipoda	124	3,85
FP-33	61	11	*Nemertini gen.sp.*	Nemartina	1	1,53
FP-33	61	12	*Chiridota ochotensis*	Holoturioidea	1	0,65
FP-33	61	13	*Protomedeia epimerata*	Amphipoda	63	0,53
FP-33	61	14	*Anonyx pavlovskii*	Amphipoda	1	0,49
FP-33	61	15	*Monoculodes zernovi*	Amphipoda	71	0,38
FP-33	61	16	*Diastylis bidentata*	Cumacea	37	0,34
FP-33	61	17	*Orchomenella pinguis*	Amphipoda	50	0,29
FP-33	61	18	*Pleusymtes vasinae*	Amphipoda	14	0,28
FP-33	61	19	*Grandifoxus robustus*	Amphipoda	30	0,25
FP-33	61	20	*Bathymedon subcarinatus*	Amphipoda	33	0,24

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-33	61	21	*Paraphoxus simplex*	Amphipoda	153	0,24
FP-33	61	22	*Grandifoxus longirostris*	Amphipoda	25	0,2
FP-33	61	23	*Eohaustorius eous eous*	Amphipoda	25	0,18
FP-33	61	24	*Grandifoxus nasuta*	Amphipoda	13	0,16
FP-33	61	25	*Anisogammarus pugettensis*	Amphipoda	1	0,05
FP-33	61	26	*Bathymedon langsdorfi*	Amphipoda	3	0,05
FP-33	61	27	*Bathymedon sp.*	Amphipoda	4	0,04
FP-33	61	28	*Ischyrocerus sp.*	Amphipoda	6	0,04
FP-33	61	29	*Acanthostepheia beringiensis*	Amphipoda	1	0,02
FP-33	61	30	*Ischyrocerus anguipes*	Amphipoda	1	0,01
FP-33	61	31	*Pleusymtes sp.*	Amphipoda	2	0,01
			Total		**2777**	**345,26**
FP-34	53	1	*Ampelisca eschrichti*	Amphipoda	4860	260,77
FP-34	53	2	*Halcampoides purpurea*	Actiniaria	38	218,78
FP-34	53	3	*Anonyx nugax*	Amphipoda	1156	113,58
FP-34	53	4	*Serripes groenlandicus*	Bivalvia	1	36,65
FP-34	53	5	*Nephthys caeca*	Polychaeta	13	31,25
FP-34	53	6	*Wecomedon minusculus*	Amphipoda	173	3,05
FP-34	53	7	*Ammodytes hexapterus*	Pisces	4	2,16
FP-34	53	8	*Crangon septemspinosa*	Decapoda	5	1,98
FP-34	53	9	*Diastylis bidentata*	Cumacea	130	1,5
FP-34	53	10	*Chiridota ochotensis*	Holoturioidea	1	0,87
FP-34	53	11	*Paraphoxus simplex*	Amphipoda	414	0,51
FP-34	53	12	*Grandifoxus nasuta*	Amphipoda	17	0,32
FP-34	53	13	*Anisogammarus pugettensis*	Amphipoda	6	0,18
FP-34	53	14	*Ischyrocerus sp.*	Amphipoda	52	0,05
FP-34	53	15	*Grandifoxus robustus*	Amphipoda	23	0,04
FP-34	53	16	*Bathymedon langsdorfi*	Amphipoda	17	0,04
FP-34	53	17	*Pleusymtes vasinae*	Amphipoda	12	0,02
FP-34	53	18	*Pleusymtes sp.*	Amphipoda	1	0,01
FP-34	53	19	*Grandifoxus longirostris*	Amphipoda	2	0,01
			Total		**6925**	**671,77**
FP-35	53	1	*Ampelisca eschrichti*	Amphipoda	1755	274,48
FP-35	53	2	*Liocyma fluctuosum*	Bivalvia	4	28,83
FP-35	53	3	*Neptunea bulbacea*	Gastropoda	1	15,33
FP-35	53	4	*Photis tenuicornis*	Amphipoda	1014	12,87
FP-35	53	5	*Halcampoides purpurea*	Actiniaria	5	10,58
FP-35	53	6	*Crangon septemspinosa*	Decapoda	6	9,08

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-35	53	7	*Scoloplos armiger*	Polychaeta	11	8,52
FP-35	53	8	*Protomedeia fasciata*	Amphipoda	256	5,63
FP-35	53	9	*Macra loveni*	Amphipoda	20	4,41
FP-35	53	10	*Arctolembos arcticus*	Amphipoda	1	3,75
FP-35	53	11	*Glycera capitata*	Polychaeta	17	2,26
FP-35	53	12	*Ampelisca macrocephala*	Amphipoda	4	2,06
FP-35	53	13	*Nemertini gen.sp.*	Nemartina	1	1,72
FP-35	53	14	*Ericthonius tolli*	Amphipoda	77	0,92
FP-35	53	15	*Chiridota ochotensis*	Holoturioidea	1	0,72
FP-35	53	16	*Socarnes bidenticulatus*	Amphipoda	1	0,66
FP-35	53	17	*Boeckosimus krassini*	Amphipoda	6	0,47
FP-35	53	18	*Diastylis bidentata*	Cumacea	41	0,38
FP-35	53	19	*Anonyx nugax*	Amphipoda	1	0,33
FP-35	53	20	*Melita sp.*	Amphipoda	4	0,21
FP-35	53	21	*Pleusymtes vasinae*	Amphipoda	1	0,11
FP-35	53	22	*Orchomenella pinguis*	Amphipoda	5	0,05
FP-35	53	23	*Lepidepecreum kasatka*	Amphipoda	1	0,02
			Total		**3233**	**383,39**
FP-36	53	1	*Ampelisca eschrichti*	Amphipoda	11886	627,3
FP-36	53	2	*Halcampoides purpurea*	Actiniaria	26	16,98
FP-36	53	3	*Paraphoxus simplex*	Amphipoda	205	8,58
FP-36	53	4	*Crangon septemspinosa*	Decapoda	5	7,52
FP-36	53	5	*Anonyx sp.*	Amphipoda	73	6,9
FP-36	53	6	*Diastylis bidentata*	Cumacea	853	4,07
FP-36	53	7	*Bathymedon subcarinatus*	Amphipoda	1453	3,55
FP-36	53	8	*Pleusymtes vasinae*	Amphipoda	2010	1,73
FP-36	53	9	*Ericthonius tolli*	Amphipoda	264	1,02
FP-36	53	10	*Arctolembos arcticus*	Amphipoda	161	0,48
FP-36	53	11	*Chiridota ochotensis*	Holoturioidea	1	0,26
FP-36	53	12	*Anonyx pavlovskii*	Amphipoda	44	0,22
FP-36	53	13	*Anonyx lilljeborgi*	Amphipoda	73	0,21
FP-36	53	14	*Orchomene sp.*	Amphipoda	48	0,15
			Total		**17102**	**678,97**
FP-37	54	1	*Ampelisca eschrichti*	Amphipoda	2651	354,7
FP-37	54	2	*Halcampoides purpurea*	Actiniaria	15	42,28
FP-37	54	3	*Crangon septemspinosa*	Decapoda	6	27,28
FP-37	54	4	*Grandifoxus robustus*	Amphipoda	1174	16,47
FP-37	54	5	*Paraphoxus simplex*	Amphipoda	1661	14,15

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-37	54	6	*Wecomedon minusculus*	Amphipoda	473	4,23
FP-37	54	7	*Macoma sp.*	Bivalvia	1	2,05
FP-37	54	8	*Pleusymtes sp.*	Amphipoda	25	1,59
FP-37	54	9	*Ammodytes hexapterus*	Pisces	3	1,25
FP-37	54	10	*Nephthys longosetosa*	Polychaeta	11	1,17
FP-37	54	11	*Grandifoxus nasuta*	Amphipoda	544	0,95
FP-37	54	12	*Anonyx nugax*	Amphipoda	103	0,8
FP-37	54	13	*Acanthostepheia beringiensis*	Amphipoda	61	0,6
FP-37	54	14	*Bathymedon subcarinatus*	Amphipoda	49	0,35
FP-37	54	15	*Anisogammarus pugettensis*	Amphipoda	4	0,35
FP-37	54	16	*Anonyx pavlovskii*	Amphipoda	54	0,32
FP-37	54	17	*Bathymedon sp.*	Amphipoda	4	0,29
FP-37	54	18	*Orchomenella pinguis*	Amphipoda	49	0,19
FP-37	54	19	*Diastylis bidentata*	Cumacea	1	0,16
FP-37	54	20	*Eohaustorius eous eous*	Amphipoda	23	0,16
FP-37	54	21	*Spiophanes bombyx*	Polychaeta	2	0,1
FP-37	54	22	*Photis reinhardi*	Amphipoda	13	0,1
FP-37	54	23	*Monoculodes zernovi*	Amphipoda	7	0,06
FP-37	54	24	*Bathymedon langsdorfi*	Amphipoda	9	0,06
FP-37	54	25	*Ischyrocerus anguipes*	Amphipoda	4	0,06
FP-37	54	26	*Protomedeia epimerata*	Amphipoda	4	0,03
FP-37	54	27	*Pleusymtes vasinae*	Amphipoda	4	0,03
FP-37	54	28	*Grandifoxus longirostris*	Amphipoda	5	0,03
FP-37	54	29	*Ischyrocerus sp.*	Amphipoda	4	0,03
FP-37	54	30	*Cylichna consobrina*	Gastropoda	1	0,01
			Total		**6965**	**469,85**
FP-38	48	1	*Halcampoides purpurea*	Actiniaria	90	430,57
FP-38	48	2	*Ampelisca eschrichti*	Amphipoda	5360	399,69
FP-38	48	3	*Protomedeia fasciata*	Amphipoda	1004	22,63
FP-38	48	4	*Chiridota ochotensis*	Holoturioidea	11	14,46
FP-38	48	5	*Crangon septemspinosa*	Decapoda	20	13,42
FP-38	48	6	*Protomedeia epimerata*	Amphipoda	4193	13,12
FP-38	48	7	*Liocyma fluctuosum*	Bivalvia	5	6,42
FP-38	48	8	*Anonyx compactus*	Amphipoda	177	4,21
FP-38	48	9	*Boeckosimus krassini*	Amphipoda	207	3,67
FP-38	48	10	*Photis sp.*	Amphipoda	1285	2,82
FP-38	48	11	*Gammaropsis*	Amphipoda	1063	2,59
FP-38	48	12	*Ammodytes hexapterus*	Pisces	3	2,53

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-38	48	13	*Wecomedon minusculus*	Amphipoda	44	1,54
FP-38	48	14	*Hippomedon sp.*	Amphipoda	44	1,54
FP-38	48	15	*Melita sp.*	Amphipoda	59	1,46
FP-38	48	16	*Anonyx pavlovskii*	Amphipoda	30	1,46
FP-38	48	17	*Grandifoxus robustus*	Amphipoda	340	1,17
FP-38	48	18	*Anonyx sp.*	Amphipoda	44	0,82
FP-38	48	19	*Orchomenella pinguis*	Amphipoda	310	0,81
FP-38	48	20	*Phascolosoma margaritacea*	Sipunculida	1	0,33
FP-38	48	21	*Bathymedon subcarinatus*	Amphipoda	89	0,32
FP-38	48	22	*Grandifoxus nasuta*	Amphipoda	59	0,31
FP-38	48	23	*Melita dentata*	Amphipoda	59	0,31
FP-38	48	24	*Paraphoxus simplex*	Amphipoda	458	0,27
FP-38	48	25	*Anonyx anivae*	Amphipoda	30	0,24
FP-38	48	26	*Orchomenella minuta*	Amphipoda	30	0,24
FP-38	48	27	*Syrrhoe crenulata*	Amphipoda	59	0,19
			Total		**15074**	**927,14**
FP-39	47	1	*Ampelisca eschrichti*	Amphipoda	8481	253,85
FP-39	47	2	*Halcampoides purpurea*	Actiniaria	38	237,88
FP-39	47	3	*Crangon septemspinosa*	Decapoda	11	7,41
FP-39	47	4	*Ammodytes hexapterus*	Pisces	1	1,4
FP-39	47	5	*Phascolosoma margaritacea*	Sipunculida	3	0,18
FP-39	47	6	*Liocyma fluctuosum*	Bivalvia	2	3,9
FP-39	47	7	*Yoldia myalis*	Bivalvia	3	2,02
			Total		**8539**	**506,64**
FP-40	46	1	*Ampelisca eschrichti*	Amphipoda	1389	89,19
FP-40	46	2	*Anonyx nugax*	Amphipoda	338	78,57
FP-40	46	3	*Crangon septemspinosa*	Decapoda	8	21,14
FP-40	46	4	*Ammodytes hexapterus*	Pisces	9	13,85
FP-40	46	5	*Liocyma fluctuosum*	Bivalvia	1	8,74
FP-40	46	6	*Wecomedon minusculus*	Amphipoda	270	3,93
FP-40	46	7	*Protomedeia fasciata*	Amphipoda	518	3,71
FP-40	46	8	*Protomedeia epimerata*	Amphipoda	149	0,71
FP-40	46	9	*Bathymedon subcarinatus*	Amphipoda	140	0,46
FP-40	46	10	*Anisogammarus pugettensis*	Amphipoda	13	0,44
FP-40	46	11	*Orchomenella pinguis*	Amphipoda	26	0,37
FP-40	46	12	*Anonyx sp.*	Amphipoda	2	0,33
FP-40	46	13	*Nemertini gen.sp.*	Nemartina	11	0,27
FP-40	46	14	*Ophelia limacina*	Polychaeta	8	0,13

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
			Total		**2882**	**221,84**
FP-41	44	1	*Ampelisca eschrichti*	Amphipoda	936	145,36
FP-41	44	2	*Liocyma fluctuosum*	Bivalvia	2	14,94
FP-41	44	3	*Buccinum lichkeanum*	Gastropoda	1	7,95
FP-41	44	4	*Crangon septemspinosa*	Decapoda	4	5,59
FP-41	44	5	*Halcampoides purpurea*	Actiniaria	2	5,48
FP-41	44	6	*Diastylis bidentata*	Cumacea	3	4,7
FP-41	44	7	*Anonyx nugax*	Amphipoda	196	4,02
FP-41	44	8	*Ericthonius tolli*	Amphipoda	302	3,08
FP-41	44	9	*Wecomedon minusculus*	Amphipoda	24	2,91
FP-41	44	10	*Anonyx pavlovskii*	Amphipoda	280	2,04
FP-41	44	11	*Macra sp.*	Amphipoda	4	1,32
FP-41	44	12	*Grandifoxus robustus*	Amphipoda	4	1,21
FP-41	44	13	*Chiridota ochotensis*	Holoturioidea	4	0,89
FP-41	44	14	*Nephthys californiensis*	Polychaeta	6	0,37
FP-41	44	15	*Anonyx sp.*	Amphipoda	2	0,23
FP-41	44	16	*Phascolosoma margaritacea*	Nemartina	10	0,2
FP-41	44	17	*Pleusymtes vasinae*	Amphipoda	6	0,09
			Total		**1786**	**200,38**
FP-42	42	1	*Halcampoides purpurea*	Actiniaria	22	129,33
FP-42	42	2	*Yoldia myalis*	Bivalvia	1	22,72
FP-42	42	3	*Crangon septemspinosa*	Decapoda	6	10,58
FP-42	42	4	*Chiridota ochotensis*	Holoturioidea	2	2,08
FP-42	42	5	*Diastylis bidentata*	Cumacea	1	0,47
FP-42	42	6	*Nephthys sp.*	Polychaeta	4	0,36
FP-42	42	7	*Ammodytes hexapterus*	Pisces	3	0,27
FP-42	42	8	*Ampelisca eschrichti*	Amphipoda	1317	87,7
FP-42	42	9	*Anonyx nugax*	Amphipoda	589	85,12
FP-42	42	10	*Protomedeia epimerata*	Amphipoda	256	3,87
FP-42	42	11	*Monoculodes zernovi*	Amphipoda	223	3,65
FP-42	42	12	*Eohaustorius eous eous*	Amphipoda	141	0,7
FP-42	42	13	*Photis reinhardi*	Amphipoda	133	0,45
FP-42	42	14	*Bathymedon subcarinatus*	Amphipoda	24	0,36
FP-42	42	15	*Melita sp.*	Amphipoda	61	0,14
FP-42	42	16	*Orchomenella pinguis*	Amphipoda	6	0,1
FP-42	42	17	*Ischyrocerus anguipes*	Amphipoda	6	0,09
FP-42	42	18	*Anonyx pavlovskii*	Amphipoda	43	0,08
FP-42	42	19	*Eyakia simplex*	Amphipoda	2	0,07

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
			Total		**2840**	**348,14**
FP-43	43	1	*Ampelisca eschrichti*	Amphipoda	4129	324,1
FP-43	43	2	*Halcampoides purpurea*	Actiniaria	55	245,8
FP-43	43	3	*Ampelisca macrocephala*	Amphipoda	2529	176,33
FP-43	43	4	*Anonyx nugax*	Amphipoda	2595	84,65
FP-43	43	5	*Liocyma fluctuosum*	Bivalvia	7	40,18
FP-43	43	6	*Protomedeia fasciata*	Amphipoda	1227	27,21
FP-43	43	7	*Diastylis bidentata*	Cumacea	3100	12,4
FP-43	43	8	*Yoldia myalis*	Bivalvia	15	10,87
FP-43	43	9	*Macra loveni*	Amphipoda	58	5,35
FP-43	43	10	*Ericthonius tolli*	Amphipoda	4519	4,45
FP-43	43	11	*Anonyx compactus*	Amphipoda	166	3,74
FP-43	43	12	*Thracia myopsis*	Bivalvia	2	2,95
FP-43	43	13	*Photis sp.*	Amphipoda	1202	2,51
FP-43	43	14	*Arctolembos arcticus*	Amphipoda	124	1,87
FP-43	43	15	*Macoma sp.*	Bivalvia	7	1,78
FP-43	43	16	*Photis vinogradovi*	Amphipoda	17	1,74
FP-43	43	17	*Socarnes bidenticulatus*	Amphipoda	638	1,48
FP-43	43	18	*Wecomedon minusculus*	Amphipoda	41	1,35
FP-43	43	19	*Anonyx pavlovskii*	Amphipoda	25	1,29
FP-43	43	20	*Grandifoxus robustus*	Amphipoda	315	1,03
FP-43	43	21	*Diplodonta aleutica*	Bivalvia	2	0,98
FP-43	43	22	*Orchomenella pinguis*	Amphipoda	290	0,71
FP-43	43	23	*Anonyx sp.*	Amphipoda	41	0,71
FP-43	43	24	*Ennucula tenuis*	Bivalvia	3	0,33
FP-43	43	25	*Ischyrocerus anguipes*	Amphipoda	83	0,32
FP-43	43	26	*Bathymedon subcarinatus*	Amphipoda	83	0,32
FP-43	43	27	*Pleusymtes vasinae*	Amphipoda	17	0,26
FP-43	43	28	*Paraphoxus simplex*	Amphipoda	431	0,26
FP-43	43	29	*Hippomedon sp.*	Amphipoda	58	0,26
FP-43	43	30	*Grandifoxus nasuta*	Amphipoda	58	0,26
FP-43	43	31	*Gammaropsis*	Amphipoda	431	0,26
FP-43	43	32	*Melita dentata*	Amphipoda	17	0,19
FP-43	43	33	*Anonyx anivae*	Amphipoda	25	0,19
FP-43	43	34	*Syrrhoe crenulata*	Amphipoda	17	0,13
FP-43	43	35	*Orchomenella sp.*	Amphipoda	17	0,13
FP-43	43	36	*Orchomene sp.*	Amphipoda	58	0,13
FP-43	43	37	*Pleusymtes sp.*	Amphipoda	58	0,06

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-43	43	38	*Lepidepecreum kasatka*	Amphipoda	25	0,06
			Total		**22485**	**956,64**
FP-44	45	2	*Halcampoides purpurea*	Actiniaria	228	309,21
FP-44	45	1	*Ampelisca eschrichti*	Amphipoda	4100	303,65
FP-44	45	3	*Yoldia myalis*	Bivalvia	78	131,14
FP-44	45	4	*Ampelisca eschrichti*	Amphipoda	4100	37,65
FP-44	45	5	*Protomedeia epimerata*	Amphipoda	159	34,77
FP-44	45	6	*Cryptonatica clausa*	Gastropoda	8	34,46
FP-44	45	7	*Bathymedon subcarinatus*	Amphipoda	84	16,2
FP-44	45	8	*Diastylis bidentata*	Cumacea	925	9,12
FP-44	45	9	*Boeckosinus krassini*	Amphipoda	14	5,74
FP-44	45	10	*Wecomedon minusculus*	Amphipoda	648	4,91
FP-44	45	11	*Anonyx nugax*	Amphipoda	567	4,05
FP-44	45	12	*Protomedeia fasciata*	Amphipoda	1461	3,2
FP-44	45	13	*Anonyx compactus*	Amphipoda	137	2,7
FP-44	45	14	*Monoculodes sp.*	Amphipoda	137	0,68
FP-44	45	15	*Eohaustorius eous eous*	Amphipoda	732	0,68
FP-44	45	16	*Chiridota ochotensis*	Holoturioidea	1	0,46
FP-44	45	17	*Melita sp.*	Amphipoda	413	0,19
FP-44	45	18	*Jyrrhoe crenulata*	Amphipoda	330	0,11
FP-44	45	19	*Ischyrocerus anguipes*	Amphipoda	190	0,06
FP-44	45	20	*Orchomenella pinguis*	Amphipoda	6	0,03
FP-44	45	21	*Anisogammarus pugettensis*	Amphipoda	134	0,03
FP-44	45	22	*Parapleustes sp.*	Amphipoda	17	0,03
FP-44	45	23	*Bathymedon sp.*	Amphipoda	34	0,02
FP-44	45	24	*Ischyrocerus sp.*	Amphipoda	64	0,02
FP-44	45	25	*Pleusymtes vasinae*	Amphipoda	56	0,02
FP-44	45	26	*Grandifoxus nasuta*	Amphipoda	14	0,02
FP-44	45	27	*Metopa sp.*	Amphipoda	14	0,01
FP-44	45	28	*Photis fischmanni*	Amphipoda	22	0,01
FP-44	45	29	*Monoculodes zernovi*	Amphipoda	20	0,01
FP-44	45	30	*Bathymedon langsdorfi*	Amphipoda	6	0,01
			Total		**14699**	**899,19**
FP-45	42	1	*Ampelisca eschrichti*	Amphipoda	3237	224,26
FP-45	42	2	*Halcampoides purpurea*	Actiniaria	60	98,37
FP-45	42	3	*Liocyma fluctuosum*	Bivalvia	8	36,63
FP-45	42	4	*Yoldia myalis*	Bivalvia	28	25,33
FP-45	42	5	*Orchomenella pinguis*	Amphipoda	3203	23,91

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-45	42	6	*Diastylis bidentata*	Cumacea	5520	16,72
FP-45	42	7	*Wecomedon minusculus*	Amphipoda	203	4,48
FP-45	42	8	*Pleusymtes vasinae*	Amphipoda	157	1,64
FP-45	42	9	*Ampelisca macrocephala*	Amphipoda	29	1,51
FP-45	42	10	*Grandifoxus robustus*	Amphipoda	46	0,77
FP-45	42	11	*Parapleustes sp.*	Amphipoda	325	0,76
FP-45	42	12	*Monoculodes zernovi*	Amphipoda	99	0,71
FP-45	42	13	*Photis sp.*	Amphipoda	162	0,66
FP-45	42	14	*Mya sp.*	Bivalvia	2	0,65
FP-45	42	15	*Macoma golikovi*	Bivalvia	2	0,58
FP-45	42	16	*Lumbrineris heteropoda*	Polychaeta	1	0,35
FP-45	42	17	*Anisogammarus pugettensis*	Amphipoda	64	0,26
FP-45	42	18	*Ennucula tenuis*	Bivalvia	2	0,23
FP-45	42	19	*Protomedeia epimerata*	Amphipoda	75	0,15
FP-45	42	20	*Bathymedon sp.*	Amphipoda	17	0,09
FP-45	42	21	*Nymphon striatum*	Pantopoda	1	0,05
FP-45	42	22	*Paraphoxus simplex*	Amphipoda	6	0,05
FP-45	42	23	*Bathymedon subcarinatus*	Amphipoda	29	0,04
			Total		**13276**	**438,2**
FP-46	50	1	*Ampelisca eschrichti*	Amphipoda	231	29,08
FP-46	50	2	*Ampelisca macrocephala*	Amphipoda	288	26,33
FP-46	50	3	*Yoldia myalis*	Bivalvia	6	5,18
FP-46	50	4	*Protomedeia fasciata*	Amphipoda	68	1,88
FP-46	50	5	*Halcampoides purpurea*	Actiniaria	6	1,55
FP-46	50	6	*Diastylis bidentata*	Cumacea	185	1,53
FP-46	50	7	*Protomedeia epimerata*	Amphipoda	202	0,84
FP-46	50	8	*Boeckosimus krassini*	Amphipoda	14	0,31
FP-46	50	9	*Photis sp.*	Amphipoda	87	0,23
FP-46	50	10	*Ammodytes hexapterus*	Pisces	1	0,15
FP-46	50	11	*Wecomedon minusculus*	Amphipoda	3	0,13
FP-46	50	12	*Anonyx pavlovskii*	Amphipoda	2	0,12
FP-46	50	13	*Grandifoxus robustus*	Amphipoda	23	0,10
FP-46	50	14	*Anonyx sp.*	Amphipoda	1	0,06
FP-46	50	15	*Orchomenella pinguis*	Amphipoda	17	0,05
FP-46	50	16	*Paraphoxus simplex*	Amphipoda	31	0,05
FP-46	50	17	*Bathymedon subcarinatus*	Amphipoda	6	0,03
FP-46	50	18	*Grandifoxus nasuta*	Amphipoda	4	0,03
FP-46	50	19	*Anonyx anivae*	Amphipoda	2	0,02

Station	Depth, m	Number species	Species	Taxonomic group	A, spec./m^2	B, g/m^2
FP-46	50	20	*Anonyx compactus*	Amphipoda	4	0,02
FP-46	50	21	*Anonyx lilljeborgi*	Amphipoda	1	0,02
FP-46	50	22	*Syrrhoe crenulata*	Amphipoda	1	0,01
			Total		**1183**	**67,7**
FP-47	46	1	*Ampelisca eschrichti*	Amphipoda	3442	148,5
FP-47	46	2	*Halcampoides purpurea*	Actiniaria	30	102,28
FP-47	46	3	*Ampelisca macrocephala*	Amphipoda	331	18,71
FP-47	46	4	*Phascolosoma margaritacea*	Sipunculida	3	5,28
FP-47	46	5	*Yoldia myalis*	Bivalvia	8	4,43
FP-47	46	6	*Diastylis bidentata*	Cumacea	360	2,29
FP-47	46	7	*Photis tenuicornis*	Amphipoda	1817	1,92
FP-47	46	8	*Protomedeia fasciata*	Amphipoda	159	1,56
FP-47	46	9	*Ericthonius tolli*	Amphipoda	427	1,35
FP-47	46	10	*Anonyx nugax*	Amphipoda	4	1,33
FP-47	46	11	*Paraphoxus simplex*	Amphipoda	52	1,03
FP-47	46	12	*Melita sp.*	Amphipoda	13	0,81
FP-47	46	13	*Macra loveni*	Amphipoda	23	0,78
FP-47	46	14	*Pleusymtes vasinae*	Amphipoda	661	0,7
FP-47	46	15	*Protomedeia epimerata*	Amphipoda	254	0,67
FP-47	46	16	*Bathymedon subcarinatus*	Amphipoda	225	0,63
FP-47	46	17	*Arctolembos arcticus*	Amphipoda	12	0,54
FP-47	46	18	*Ennucula tenuis*	Bivalvia	2	0,42
FP-47	46	19	*Photis vinogradovi*	Amphipoda	402	0,33
FP-47	46	20	*Boeckosimus krassini*	Amphipoda	23	0,28
FP-47	46	21	*Liocyma fluctuosum*	Bivalvia	2	0,2
FP-47	46	22	*Anonyx compactus*	Amphipoda	11	0,19
FP-47	46	23	*Photis sp.*	Amphipoda	78	0,13
FP-47	46	24	*Syrrhoe crenulata*	Amphipoda	1	0,01
FP-47	46	25	*Lepidepecreum kasatka*	Amphipoda	2	0,01
FP-47	46	26	*Hippomedon sp.*	Amphipoda	8	0,01
FP-47	46	27	*Macra sp.*	Amphipoda	2	0,01
FP-47	46	28	*Orchomenella minuta*	Amphipoda	1	0,01
			Total		**8353**	**294,41**